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EIGHTH ANNUAL REPORT

OF THE

PENSION BOARD

OF

THE AMERICAN MUSEUM OF NATURAL HISTORY

FOR THE YEAR 1920

MISCELLANEOUS PUBLICATIONS OF
THE AMERICAN MUSEUM OF NATURAL HISTORY NO. 14

NEW YORK
February 1, 1921

EIGHTH ANNUAL REPORT

OF THE

PENSION BOARD

OF

THE AMERICAN MUSEUM OF NATURAL HISTORY

FOR THE YEAR 1920

MISCELLANEOUS PUBLICATIONS OF
THE AMERICAN MUSEUM OF NATURAL HISTORY NO. 14

NEW YORK
February 1, 1921

OFFICERS AND MEMBERS OF THE PENSION BOARD

1920

Chairman
FELIX M. WARBURG

Vice-Chairman
RALPH W. TOWER

Treasurer
HENRY P. DAVISON

Secretary
GEORGE N. PINDAR

TRUSTEE MEMBERS

ADRIAN ISELIN
WALTER B. JAMES
PERCY R. PYNE
FELIX M. WARBURG

EMPLOYEE MEMBERS

HARRY F. BEERS
RALPH W. TOWER
GEORGE N. PINDAR

Bursar
FREDERICK H. SMYTH

Counsel
LEWIS L. DELAFIELD

Consulting Actuary
S. HERBERT WOLFE

Medical Examiner
GEORGE M. MACKENZIE, M. D.

To the President and Trustees of The American Museum of Natural History and to the Subscribers to the Fund:

In accordance with the Rules and Regulations, I have the honor to transmit to you herewith the Eighth Annual Report of the activities of the Pension Board and of its financial operations for the fiscal year ending December 31, 1920.

FELIX M. WARBURG,
Chairman.

February 1, 1921

After eight years of successful operation, it is the concensus of opinion that the basic principles of our pension system were soundly formulated, and that the success of the plan has been due in great measure to the foresight which created a pension committee composed jointly of employer and employee representatives.

In one of his essays, Thomas Carlyle says:

"The man who must work and the man who must find work for that man to do should be bound by ties that are stronger than mere wages."

This conviction lies at the root of our pension system, and its expression was prophetic of the whole present trend of relations between employer and employee.

The Pension Fund operations of these eight years are especially gratifying in view of the restrictions we have been under owing to lack of endowment, and the fact that full credit for their years of service previous to the formation of the Fund is allowed our employees, without the exaction of contributions or the allocation of funds to cover such years. All claims have been paid, however, and an unusually satisfactory investment fund has been accumulated. And, to gauge the value of our system from another standpoint, the Museum Administration assure us that the pension plan serves to attract the best class of workers, to retain skilled employees, to increase the general good will and to promote efficiency and initiative.

There are of course certain features of the present system which it is felt could be improved with benefit to the employee body and the Corporation mutually. This applies particularly to the rules governing pension grants, service requirements and general administration of the funds. It has been suggested, for instance, that the present minimum pension payments should be increased; that workers should have the option of retiring after a continuous service of twenty-five years; that in order to establish the status of part-time employees a rule should be fixed defining what portion of a year of service an employee must give to the Museum in order to be eligible to membership in the Fund; and that more exact provisions should be made for the direction by the Pension Board of matters of Pension Fund administration.

Our pension system is now constituted on an old-age basis exclusively. The idea is gaining strength that long service is

also entitled to its reward, and that after twenty-five years of faithful work, the employee should be given the opportunity to retire on pension, (and, if he finds it necessary so to supplement his income, to engage in such other less exacting work as he feels able to undertake), in order that the remaining years of his life may yield a personal profit and satisfaction which are not to be enjoyed during the working life of the average wage-earner, but which are a part of everyone's birthright and for which any just and successful economic scheme must make provision. So far as the Museum is concerned, experience indicates that on the present basis few of our employees avail themselves of their right to retire unless driven to do so by physical necessity. The probability is that the number of employees who would retire on a service basis would be small.

This is of course due to the fact that Museum personnel is composed largely of workers whose work is their first interest in life and therefore their most vital and enjoyable form of self-expression. It is probably among the clerical and mechanical workers that most retirements on a service basis would be sought. The additional liability against the Fund would be slight, and the granting of the privilege could not act otherwise than to improve the general morale of the workers. Such additional financial obligation as a service pension provision would involve, moreover, might be compensated for by the taking out of group insurance (briefly discussed below), to take the place of Pension Fund death gratuities.

The problem of the status of part-time employees is a difficult one. So far as has been ascertained at this time, the opinion prevails that nine months per year of continuous service should be required of every employee who is to be classed as "permanent," and that in no event should any employee be permitted to become a subscriber whose name and yearly salary rate is not included in the annual budget.

A committee is at the present time engaged in the consideration of these and other proposed revisions of the Rules and Regulations, and in its investigations is giving attention to all available material bearing on the subject of pension fund regulations and administration.

In this connection the subject of group insurance will be considered, for, if this form of insurance should be found

adapted to our needs and be approved by the Trustees of the Corporation, it would go far in helping to solve the problem of reducing age and service requirements for retirement.

Group insurance, as the name suggests, means an insurance issued under a single contract (renewable yearly) covering all the persons of a group working under the same employer. It can be undertaken if at least 75% to 80% of the permanent employees accept the plan. The policy is issued without medical examination. It insures the individual employee in the event of death in the amount of his annual salary, up to $5,000, and is obtainable at a rate of between ¾% and 1% of his annual salary. In the hypothetical case where the personnel of the employee body remains the same from year to year, the rate, naturally, increases; but with a "turnover" of at least 15% (such as may be reasonably counted on in our institution), the rate would remain almost constant.

Frequently the policies are effected and paid for by the employer, sometimes by the employee; or the premium rate may be divided jointly. It is also permissible to base the insurance on length of service, the policy calling for a lesser amount during the early years of employment and gradually increasing until the maximum, $5,000, is reached. But it is thought that the salary basis, described above, is the better.

When the contract is effected, the employer receives the general policy and each employee an individual certificate. New permanent employees taken on during the year are automatically insured from the first day of permanent employment. Those leaving the service have the option for thirty days of continuing their insurance, in the amount of their salary on leaving, without medical examination, under any of the various options offered by the insurance company, i. e., ordinary life, twenty payment life, or endowment. This insurance is carried, of course, under the regular company rates.

There are several decided advantages in group insurance as compared with the death insurance features of our pension system, namely: under the group insurance plan, the employee is insured immediately from the time his status is defined as permanent, while under our present plan, the insurance feature does not become active until the employee has been a member of the Pension Fund for an entire year; group insurance offers a gratuity from 40% to 75% greater than that provided

for under our present plan; the group plan provides insurance at a much lower rate than it is possible for the Pension Fund, with its additional responsibilities and limited resources, to offer; participants in the group insurance plan have the privilege of continuing their policy, without medical examination, after leaving the employ of the Museum.

We are glad to report that at the close of 1920 we have 249 contributors. There have been forty new members admitted into the Fund during the past year, eighteen have resigned and two have been dismissed. We have lost by death four subscribers, of whom further mention is made later in this report. There has been one retirement.

In the recent death of Horace F. Hutchinson, banker and financier, a fine and generous man was lost, and, so far as the Museum was concerned, a valued member and very good friend, who for eight years past has given to Museum employees in need the frequent and free use of his endowed beds in the Presbyterian Hospital.

To Mr. Lewis L. Delafield, Colonel S. Herbert Wolfe, Dr. John A. Fordyce and Dr. George M. Mackenzie, we are under deep obligation, and we take this opportunity to express our sincere gratitude to them.

Deceased Subscribers

We deeply regret to have to report the deaths of the following members during the year 1920:

Adam Brickner

Adam Brickner was born in New York City on June 17, 1875. He came to the Museum in 1897 and was first attached to the Department of Vertebrate Palaeontology, but soon after was transferred to the Department of Geology as an assistant under the late Professor Whitfield. In this capacity he served with great efficiency and faithfulness, despite a distressing physical condition which existed for the last ten years of his life, until his death on December 12, 1920. Because of his knowledge of the specimens in the department, his services were always in demand, and it will be very difficult to fill his place. Of most kindly disposition, and steadfast in his friendships, he was always welcome in groups of his fellow employees.

John T. Davis

John T. Davis was born on September 9, 1844, in Flagtown, New Jersey. After being employed for many years as a shipjoiner, he began general carpentry work for contractors who were engaged in Museum building and case construction. In 1901, he entered the service of the Museum and became a member of the Construction Department, in which capacity he

served until 1917, when he was forced to retire because of declining health. He died on August 15, 1920. He was the fortunate possessor of an exceedingly happy disposition and courteous manner, and of the faculty of retaining the friendship of those with whom he came in daily contact.

Richard P. Schutz

Richard P. Schutz was born in Honesdale, Pennsylvania, on June 1, 1857. In 1910, he became an attendant in the Museum, in which position he served during his remaining years. His services were always satisfactory to the Administration, and his uniform kindliness toward all with whom he associated will long be remembered. His sudden death on August 27, 1920, came as a distinct shock to all the employees of the Museum who had known him.

Benjamin L. Smith

Benjamin L. Smith was born in New York City on December 29, 1877. In 1902, he became a member of the Construction Department, where he served as a painter until March 15, 1919, when, because of ill health, he was obliged to go on leave of absence. His condition became such that it was necessary for him to live in the mountains of Pennsylvania. There he died on October 2, 1920. He was an excellent worker at his trade and of cheerful disposition. His death was a matter of general regret among his associates.

RETIREMENTS

Name	Former Position	Date of Retirement	Yearly Allowance	Period of Pension
H. Ernestine Ripley	Secretary	Jan. 1, 1919	$416 00	16 years
George A. Young	Carpenter	Feb. 1, 1919	253 03	15 years
Adam Hermann	Preparator	Jan. 1, 1920	988 00	Life

FINANCIAL STATEMENT

1920

Invested Funds

	Par Value	Book Value
Endowment Fund	$1,258 37	$1,140 39
Investment Fund	147,741 63	136,752 37
Total	$149,000 00	$137,892 76

STATEMENT OF INVESTED FUNDS

Par Value	Securities	Due	Rate of Int.	Interest Payable	Ann. Int.	Date Acquired	Book Value
$5,000 00	Union Pacific Railroad Company, 1st Lien & Refunding Mortgage Bonds	2008	4%	Mar.-Sept.	$200 00	Feb. 26, 1914	$4,687 50
5,000 00	Chicago & Northwestern Railway Company, General Mortgage Bonds	1987	4%	May-Nov.	200 00	July 7, 1914	4,725 00
5,000 00	Pennsylvania Railroad Company, General Mortgage Bonds	1965	4½%	June-Dec.	225 00	June 4, 1915	4,887 50
5,000 00	Baltimore & Ohio Railroad Co., Refunding & General Mortgage Bonds	1995	5%	June-Dec.	250 00	Dec. 29, 1915	5,050 00
5,000 00	Chicago, Milwaukee, St. Paul Railway Company, General & Refunding Mortgage Bonds	2014	4½%	Apr.-Oct.	225 00	May 5, 1916	4,668 75
5,000 00	Atchison, Topeka & Santa Fe Railway Company, General Mortgage Bonds	1995	4%	Apr.-Oct.	200 00	May 29, 1916	4,687 50
5,000 00	Norfolk & Western Railway, First Consol. Mortgage Bonds	1996	4%	Apr.-Oct.	200 00	May 29, 1916	4,681 25
5,000 00	New York Central Railroad Co., Refunding & Improvement Bonds	2013	4½%	Apr.-Oct.	225 00	May 29, 1916	4,706 25
5,000 00	Southern Pacific Railroad Co., First Refunding Mortgage Bonds	1955	4%	Jan.-July	200 00	May 29, 1916	4,533 75
5,000 00	Northern Pacific Railway Co., Refunding & Improvement Mortgage Bonds	2047	4½%	Jan.-July	225 00	July 17, 1916	4,825 00
5,000 00	Illinois Central Railroad Co., Refunding Mortgage Bonds	1955	4%	May-Nov.	200 00	Oct. 18, 1916	4,518 75
5,000 00	Chicago, Burlington & Quincy R. R. Company, General Mortgage Bonds	1958	4%	Mar.-Sept.	200 00	Dec. 30, 1916	4,717 50
5,000 00	Louisville & Nashville R. R. Co., Unified Mortgage Bonds	1940	4%	Jan.-July	200 00	Apr. 12, 1917	4,656 25
6,000 00	Baltimore & Ohio R. R. Co. (Pittsburgh, L. Erie & W. Va.), Refunding Mortgage Bonds	1941	4%	May-Nov.	240 00	July 16, 1917	4,808 75
5,000 00	Pennsylvania R. R. Co., General Mortgage Bonds	1965	4½%	June-Dec.	225 00	Oct. 19, 1917	4,608 75
1,000 00	Atchison, Topeka & Santa Fe Ry. Co., General Mortgage Bonds	1995	4%	Apr.-Oct.	40 00	Mar. 12, 1918	821 25
1,000 00	Norfolk & Western Ry. Co., Consolidated Bonds.	1996	4%	Apr.-Oct.	40 00	Mar. 12, 1918	831 25
2,000 00	Union Pacific R. R. Co., 1st Lien Refunding Mortgage Bonds	2008	4%	Mar.-Sept.	80 00	Mar. 12, 1918	1,502 50

Par Value	Securities	Due	Rate of Int.	Interest Payable	Ann. Int.	Date Acquired	Book Value
2,000 00	Southern Pacific R. R. Co., 1st Refunding Mortgage Bonds	1955	4%	Jan.-July	80 00	Mar. 12, 1918	1,582 50
5,000 00	Great Northern Ry. Co., 1st Refunding Mortgage Bonds	1961	4¼%	Jan.-July	212 50	May 10, 1918	4,456 25
4,000 00	Atchison, Topeka & Santa Fe Ry. Co., General Mortgage Bonds	1995	4%	Apr.-Oct.	160 00	Aug. 19, 1918	3,250 00
2,000 00	Chicago, Burlington & Quincy Ry. Co., General Mortgage Bonds	1958	4%	Mar.-Sept.	80 00	Aug. 20, 1918	1,602 50
5,000 00	United States of America Third Liberty Loan Bonds	1928	4¼%	Mar.-Sept.	212 50	Nov. 30, 1918	4,890 00
3,000 00	Chicago, Burlington & Quincy R. R. Co., General Mortgage Bonds	1958	4%	Mar.-Sept.	120 00	Jan. 27, 1919	2,486 25
3,000 00	Union Pacific Railroad Co., 1st & Refunding Mortgage Bonds	2008	4%	Mar.-Sept.	120 00	Jan. 27, 1919	2,460 00
5,000 00	United States of America Victory Liberty Loan Bonds	1922/3	4¾%	June-Dec.	237 50	May 15, 1919	5,000 00
5,000 00	United States of America Victory Liberty Loan Bonds	1922/3	4¾%	June-Dec.	237 50	June 17, 1919	4,998 00
3,000 00	N. Y. C. Municipal Bonds	1927	4½%	Jan.-July	135 00	Sept. 19, 1919	3,001 88
2,000 00	Pennsylvania R. R. Co., General Mortgage Bonds	1968	5%	June-Dec.	100 00	Oct. 2, 1919	1,827 50
5,000 00	United States of America Victory Liberty Loan Bonds	1922/3	4¾%	June-Dec.	237 50	Dec. 11, 1919	4,954 00
5,000 00	United States of America Victory Liberty Loan Bonds	1922/3	4¾%	June-Dec.	237 50	Mar. 10, 1920	4,875 00
5,000 00	United States of America Victory Liberty Loan Bonds	1922/3	4¾%	June-Dec.	237 50	May 7, 1920	4,803 56
5,000 00	United States of America Victory Liberty Loan Bonds	1922/3	4¾%	June-Dec.	237 50	July 9, 1920	4,798 56
5,000 00	United States of America Third Liberty Loan Bonds	1928	4¼%	Mar.-Sept.	212 50	Oct. 11, 1920	4,535 13
5,000 00	United States of America Fourth Liberty Loan Bonds	1933/38	4¼%	Apr.-Oct.	212 50	Nov. 12, 1920	4,364 13
$149,000 00					$6,445 00		$137,892 76

PENSION FUND ACCOUNT

RECEIPTS

1920

CASH ON HAND, JANUARY 1, 1920			$7,731 48
CONTRIBUTIONS OF SUBSCRIBING EMPLOYEES:			
Deductions of 3% from Payrolls of			
City Maintenance Account	$7,018 75		
General Account	2,086 92		
Morris K. Jesup Fund Account	4,484 61		
Special Funds Account	42 54		
Corporate Stock Account	174 36		
Incidental Account	7 83		
		$13,815 01	
Personal Contributions of Subscribing Employees		595 95	
			14,410 96
CONTRIBUTIONS OF BOARD OF TRUSTEES:			
To Equal Contributions of Subscribing Employees			14,410 96
Return of Contributions (Previously Refunded)			43 25
Interest on Repayments of Contributions and Interest			39
Interest on Deferred Contributions			04
INTEREST ON INVESTMENT FUND			5,652 85
INTEREST ON ENDOWMENT FUND			50 34
INTEREST ON CREDIT BALANCES			217 03
BURSAR'S ACCOUNT			500 00
			$43,017 30

Examined and Approved { ADRIAN ISELIN, PERCY R. PYNE } *Auditing Committee*

in account with H. P. DAVISON, *Treasurer*

PENSION FUND ACCOUNT

DISBURSEMENTS

1920

RETURN OF CONTRIBUTIONS	$1,724 58	
INTEREST ON CONTRIBUTIONS RETURNED	113 07	
		$1,837 65
SERVICE PENSIONS "A"	422 22	
SERVICE PENSIONS "E"	988 00	
PENSION IN EVENT OF ILLNESS, DISMISSAL, ETC.	416 00	
DEATH GRATUITIES PAID UNDER SECTION 13	1,854 86	
" " " " " 18	868 35	
		4,549 43
PURCHASE OF SECURITIES:		
Investment Fund		23,376 38
EXPENSES		50 00
LOAN ACCOUNT		500 00
CASH ON HAND DECEMBER 31, 1920:		
Deposited with the United States Trust Company of New York	12,203 84	
Deposited with Colonial Bank (Bursar's Account)	500 00	
		12,703 84
		$43,017 30

E. & O. E.

NEW YORK, *December 31, 1920*

H. P. DAVISON, *Treasurer*

PENSION FUND—SPECIAL FUNDS ACCOUNT

RECEIPTS

1920

LIBERTY LOAN ACCOUNTS:			
Interest on Credit Balances			$100 79
AMERICAN MUSEUM LIBERTY LOAN No. 1:			
Cash on hand, January 1, 1920			05
AMERICAN MUSEUM LIBERTY LOAN No. 2:			
Cash on hand, January 1, 1920			43
AMERICAN MUSEUM LIBERTY LOAN No. 4:			
Cash on hand, January 1, 1920		$95 00	
Subscribers' Payments:			
Personal Payments	$84 30		
Deducted from Salaries	1,660 00		
		1,744 30	
Interest on Unpaid Balances:			
Personal Payment	40		
Deducted from Salaries	17 05		
		17 45	
			1,856 75
AMERICAN MUSEUM VICTORY LIBERTY LOAN:			
Subscribers' Payments:			
Personal Payments	605 00		
Deducted from Salaries	6,328 64		
		6,933 64	
Interest on Unpaid Balances:			
Personal Payment	6 40		
Deducted from Salaries	160 86	167 26	
			7,100 90
			$9,058 92

Examined and Approved { ADRIAN ISELIN, PERCY R. PYNE } *Auditing Committee*

in account with H. P. DAVISON, TREASURER

PENSION FUND—SPECIAL FUNDS ACCOUNT

DISBURSEMENTS

1920

LIBERTY LOAN ACCOUNTS:		
Advances for 1919 Accounts		$45 21
AMERICAN MUSEUM LIBERTY LOAN No. 4:		
Purchase of Bonds:		
Loan Account	$1,839 30	
Interest on Loans	18 28	
		1,857 58
AMERICAN MUSEUM VICTORY LIBERTY LOAN:		
Purchase of Bonds:		
Loan Account	6,933 64	
Interest on Loans	166 74	
		7,100 38
CASH ON HAND, DECEMBER 31, 1920:		
Deposited with the United States Trust Company of New York		55 75
		$9,058 92

E. & O. E.

NEW YORK, *December 31, 1920*

H. P. DAVISON, *Treasurer*

NINTH ANNUAL REPORT

OF THE

PENSION BOARD

OF

THE AMERICAN MUSEUM OF NATURAL HISTORY

FOR THE YEAR 1921

MISCELLANEOUS PUBLICATIONS OF
THE AMERICAN MUSEUM OF NATURAL HISTORY NO. 15

NEW YORK
February 1, 1922

NINTH ANNUAL REPORT

OF THE

PENSION BOARD

OF

THE AMERICAN MUSEUM OF NATURAL HISTORY

FOR THE YEAR 1921

MISCELLANEOUS PUBLICATIONS OF
THE AMERICAN MUSEUM OF NATURAL HISTORY NO. 15

NEW YORK
February 1, 1922

OFFICERS AND MEMBERS OF THE PENSION BOARD

1921

Chairman
FELIX M. WARBURG

Vice-Chairman
RALPH W. TOWER

Treasurer
HENRY P. DAVISON

Secretary
GEORGE N. PINDAR

Trustee Members

ADRIAN ISELIN
WALTER B. JAMES
A. PERRY OSBORN
FELIX M. WARBURG

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Bursar
FREDERICK H. SMYTH

Counsel
LEWIS L. DELAFIELD

Consulting Actuary
S. HERBERT WOLFE

Medical Examiner
GEORGE M. MACKENZIE, M. D.

To the President and Trustees of The American Museum of Natural History and to the Subscribers to the Fund:

In accordance with the Rules and Regulations, I have the honor to transmit to you herewith the Ninth Annual Report of the activities of the Pension Board and of its financial operations for the fiscal year ending December 31, 1921.

FELIX M. WARBURG,
Chairman.

February 1, 1922

With the gradual return of our industries to normal, thought is being given as never before to the obligation of employers to their workers, and to the best way to provide for those who have devoted themselves faithfully and unselfishly and frequently without hope or thought of reward to building up the plant or institution in which they are engaged. The employer who has solved this problem by recognizing his obligation, in a manner which has not the savor of paternalism, by an active and equitable system of provision for aged and long-service workers, is bound to have his reward in the increased loyalty, energy and efficiency and the greater permanency of individual workers. Many institutions and private corporations have dealt with the situation by installing pension systems similar to our own plan, group insurance or wage bonuses. Frequently, however, the systems require too long a service period or provide too low an annuity to make retirement possible for the employee. This seems in a great measure to be the case with our own pension system.

On seeking the opinion of members who have given especial thought to the workings of our Rules and Regulations, we find three general criticisms:

1. Too long a service period is required for retirement.
2. The pensions allowed are too small to permit of voluntary retirement.
3. The death gratuities are inadequate.

The Pension Board is frequently importuned by its employee members to adopt amendments on these points, and it is to be hoped that, after another survey has been made, revision along the suggested lines may be found possible, in view of the highly satisfactory financial condition of the Fund.

It is thought important, in this connection, to call attention to a condition which, at the time of the adoption of the present Rules, was not allowed for in determining pension requirements of either service or age,—the wonderful loyalty to the Museum which prevails among our employees. We have a number of contributors who are eligible to retirement on a living annuity, but who prefer to continue at the Museum in their chosen activities. Unfortunately, however, we have also some members who deserve and desire to be superannuated, but whose annuities would not be sufficient for their support. For these people, increased

allowances should be provided. Service periods for retirement on half pay should be reduced by five years, provided such change is found possible without affecting the integrity of the Fund.

Surprise is always expressed at the small sums paid to the beneficiaries of deceased contributors, and it is felt that, especially in the case of the lower-salaried workers with long-service periods to their credit, this provision of our Rules fails to meet the needs of the bereaved families. Either the gratuities should be increased or some additional form of insurance should be adopted. The group life insurance plan seems to offer a solution. A vote recently taken among the employees indicates that such a form of insurance would be acceptable if the premiums could be arranged on the same basis as Pension Fund payments, i. e., equal contributions on the part of the Corporation and employees. The Pension Board recommends the adoption of such a form of insurance in addition to the insurance features included in the Pension Plan.

Sudden deaths among our employees have again brought to our attention the advantage to be derived from a life extension service consisting of periodical physical examinations. There is little doubt that such a service would be generally acceptable in the Museum; but it probably would not be successful unless provided free of charge. Such an arrangement does not seem feasible or advisable. As substitute measures, however, with the same object of promoting the health of our employees, two other suggestions have been made: first, that lectures on health and hygiene be given to the employees by reliable lecturers secured through the Museum's Department of Public Health; second, that, in view of the distinctly educational character of our institution, a system of periodic extended vacations, similar to those in force in academic circles, be adopted.

Originally appointed only to supervise the working of the Pension Rules, the Pension Board finds the scope of its work greatly extended. It has recently been found necessary for the Chairman of the Board to appoint a Welfare Committee, consisting of Mr. A. Perry Osborn, Chairman, Dr. James, Mr. Pindar and Mr. Warburg, ex-officio, to handle the problems of employee welfare which are constantly arising. During the past year, thirteen employees have been provided with needed physical examination and medical advice, hospital treatment or surgical

assistance. Nor has the Committee's work stopped with the contributors. Services have also been extended to members of employees' families.

At the close of 1921, the Pension Fund has an active membership of 248, with 3 employees on the retired list.

During the year, we have lost by death three members, concerning whom particular mention is made in another part of this report.

We wish to record the very satisfactory and efficient service of Dr. George M. Mackenzie, the friendly cooperation of Dr. John A. Fordyce, the constructive criticisms of Mr. S. Herbert Wolfe and the advice and counsel of Mr. Lewis L. Delafield. These gentlemen, of high standing in their respective professions, freely give of their time and thought to help our employees and to assist in all possible ways the operation of our pension system.

Mr. Richard B. Kelly and Mr. Adrian Iselin have very generously extended to our employees the use of their endowed hospital beds. To others, too, who have requested that their names be omitted, we acknowledge with deep appreciation their solicitude and generosity.

In closing this, the Ninth Report of the Pension Board, it seems fitting to state that the Board, through its sub-committees, is seeking the best means to provide for the contributors adequate pensions, suitable gratuities and helpful medical and surgical attention; and the members of the Board are gratified with the very responsive attitude of the contributors towards its aims and recommendations.

Deceased Subscribers

We deeply regret to have to report the deaths of the following members during the year 1921:

Joel Asaph Allen

Joel Asaph Allen was born in Springfield, Massachusetts, on July 19, 1838. For thirty-six years he directed the development of our Department of Mammalogy. In addition to his departmental work, Dr. Allen was Editor of the scientific publications of the Museum for nearly thirty years, and during this period wrote and published more than one thousand papers on natural history subjects, particularly birds and mammals. His interest in young research workers, his generous sympathy, consideration and helpfulness endeared him to all who knew him. He died at Cornwall-on-Hudson, on August 29, 1921.

Erwin S. Christman

Erwin S. Christman was born on January 14, 1885, in Clinton, New Jersey. At the age of fifteen years, he came to the Museum to try his skill in drawing skulls of fossil mammals. For one so young he possessed a peculiarly keen sense of light and shadow, and his ability, industry and pleasing personality quickly attracted the attention of the staff of the Department of Vertebrate Palaeontology. With their encouragement, he soon

earned recognition as an artist who was able to portray his subjects faithfully. His very sudden death came as a shock to all, and his passing has left a void among his many friends in the Museum. He died on November 27, 1921.

Frank C. Schaeffer

Frank C. Schaeffer was born in Schoharie, New York, on April 26, 1860. Born on a farm handed down from his ancestors, who purchased their property from the Indians, he followed agricultural pursuits for the greater part of his life. In 1908, he entered the employ of the Museum, where for thirteen years he was engaged in the packing department. Mr. Schaeffer early earned for himself the esteem of his fellow workers. He possessed a most likable personality, as was evidenced by his host of friends. An excellent worker, a cheerful companion and a faithful and industrious employee, he suffered long and patiently, and passed to the great beyond on February 19, 1921.

HEALTH HABITS

By Dr. George M. Mackenzie

The following suggestions are offered in response to a request for practical advice in regard to the prevention of disease and the maintenance of an efficient healthy body.

Preventive medicine, public health, personal hygiene, are phases of medical science claiming a constantly increasing attention because of the growing recognition of the efficacy of preventive measures, not only for the community as a whole, but also for the individual.

I. Tuberculosis. It is now known that almost all, and probably all, individuals in civilized communities at some time during early life become infected with tuberculosis. A great majority, of course, never manifest any symptoms at the time of first infection. When consumption develops in adult life it is in a majority of cases due to the fact that the health of the individual has become impaired by unhygienic conditions of living, or harmful habits, and the germs which have been present harmlessly in the body since childhood, take root, grow and multiply and infect the lungs or other organs. The individual then has consumption and may or may not recover. Impairment of health, lowering of resistance to tuberculosis, a "run down condition," are so largely dependent upon health habits that with a very small amount of effort in habit formation, the individual, barring dire poverty, can almost certainly insure himself against consumption.

The following are the most important preventive habits as far as tuberculosis is concerned:

(1) The daily fresh air and sunlight habit.

(2) Eight or nine hours sleep with open windows.

(3) Proper ventilation of work rooms.

(4) Sufficient nourishing food at regular times. If you are uncertain which foods to eat, which to avoid and how much you should eat, ask your doctor for instructions.

(5) Avoidance of overwork.

(6) Regularity in sleeping, eating, exercising in the open air and work.

Not only will these habits make tuberculous infection highly improbable, but they will also render the individual less susceptible to many other diseases.

II. Constipation. The most common cause of "feeling mean," of headaches, or a lack of a sensation of health and vigor, is sluggishness of the bowels. It is universal, unhealthful and unnecessary. With only a little effort in habit formation no one need use cathartics.

(1) *Water:* One or two glasses of water before retiring and again first thing in the morning.

(2) *Diet:* Include in the daily diet such food as prunes, baked apples, cooked or raw fruits, spinach, celery, lettuce, and if necessary, bran biscuits and figs.

(3) *Habit:* At exactly the same time every day go for a bowel movement.

III. Periodic Physical Examination. Since certain common diseases, and notably cancer, often produce no symptoms until the time is past when treatment is effective, it is the part of prudence to let your doctor examine you every six months for incipient disease of which you are unaware. If such a habit were universal, cancer would frequently, instead of rarely, be curable.

IV. Teeth. It is now quite definitely known that bad teeth are frequently the cause of disabling diseases. The habit of going once a year to a good dentist and having the teeth put in order, coupled with the habit of thoroughly cleansing the mouth twice daily, would eliminate many intestinal diseases and a great deal of rheumatism.

RETIREMENTS

Name	Former Position	Date of Retirement	Yearly Allowance	Period of Pension
H. Ernestine Ripley	Secretary	Jan. 1, 1919	$416.00	16 years
George A. Young	Carpenter	Feb. 1, 1919	253.03	15 years
Adam Hermann	Preparator	Jan. 1, 1920	988.00	Life

FINANCIAL STATEMENT 1921

Invested Funds

	Par Value	Book Value
Endowment Fund	$1,258.37	$1,140.39
Investment Fund	189,341.63	170,532.21
Total	$190,600.00	$171,672.60

STATEMENT OF INVESTED FUNDS

Par Value	Securities	Due	Rate of Int.	Interest Payable	Ann. Int.	Date Acquired	Book Value
$5,000 00	Union Pacific Railroad Company, 1st Lien & Refunding Mortgage Bonds	2008	4%	Mar.-Sept.	$200 00	Feb. 26, 1914	$4,687 50
5,000 00	Chicago & Northwestern Railway Company, General Mortgage Bonds	1987	4%	May-Nov.	200 00	July 7, 1914	4,725 00
5,000 00	Pennsylvania Railroad Company, General Mortgage Bonds	1965	4½%	June-Dec.	225 00	June 4, 1915	4,887 50
5,000 00	Baltimore & Ohio Railroad Co., Refunding & General Mortgage Bonds	1995	5%	June-Dec.	250 00	Dec. 29, 1915	5,050 00
5,000 00	Chicago, Milwaukee, St. Paul Railway Company, General & Refunding Mortgage Bonds	2014	4½%	Apr.-Oct.	225 00	May 5, 1916	4,668 75
5,000 00	Atchison, Topeka & Santa Fe Railway Company, General Mortgage Bonds	1995	4%	Apr.-Oct.	200 00	May 29, 1916	4,687 50
5,000 00	Norfolk & Western Railway, First Consol. Mortgage Bonds	1996	4%	Apr.-Oct.	200 00	May 29, 1916	4,681 25
5,000 00	New York Central Railroad Co., Refunding & Improvement Bonds	2013	4½%	Apr.-Oct.	225 00	May 29, 1916	4,706 25
5,000 00	Southern Pacific Railroad Co., First Refunding Mortgage Bonds	1955	4%	Jan.-July	200 00	May 29, 1916	4,533 75
5,000 00	Northern Pacific Railway Co., Refunding & Improvement Mortgage Bonds	2047	4½%	Jan.-July	225 00	July 17, 1916	4,825 00
5,000 00	Illinois Central Railroad Co., Refunding Mortgage Bonds	1955	4%	May-Nov.	200 00	Oct. 18, 1916	4,518 75
5,000 00	Chicago, Burlington & Quincy R. R. Company, General Mortgage Bonds	1958	4%	Mar.-Sept.	200 00	Dec. 30, 1916	4,717 50
5,000 00	Louisville & Nashville R. R. Co., Unified Mortgage Bonds	1940	4%	Jan.-July	200 00	Apr. 12, 1917	4,656 25
6,000 00	Baltimore & Ohio R. R. Co. (Pittsburgh, L. Erie & W. Va.), Refunding Mortgage Bonds	1941	4%	May-Nov.	240 00	July 16, 1917	4,808 75
5,000 00	Pennsylvania R. R. Co., General Mortgage Bonds	1965	4½%	June-Dec.	225 00	Oct. 19, 1917	4,608 75
1,000 00	Atchison, Topeka & Santa Fe Ry. Co., General Mortgage Bonds	1995	4%	Apr.-Oct.	40 00	Mar. 12, 1918	821 25
1,000 00	Norfolk & Western Ry. Co., Consolidated Bonds	1996	4%	Apr.-Oct.	40 00	Mar. 12, 1918	831 25
2,000 00	Union Pacific R. R. Co., 1st Lien Refunding Mortgage Bonds	2008	4%	Mar.-Sept.	80 00	Mar. 12, 1918	1,592 50

Par Value	Securities	Due	Rate of Int.	Interest Payable	Ann. Int.	Date Acquired	Book Value
2,000 00	Southern Pacific R. R. Co., 1st Refunding Mortgage Bonds	1955	4%	Jan.-July	80 00	Mar. 12, 1918	1,582 50
5,000 00	Great Northern Ry. Co., 1st Refunding Mortgage Bonds	1961	4¼%	Jan.-July	212 50	May 10, 1918	4,456 25
4,000 00	Atchison, Topeka & Santa Fe Ry. Co., General Mortgage Bonds	1995	4%	Apr.-Oct.	160 00	Aug. 19, 1918	3,250 00
2,000 00	Chicago, Burlington & Quincy Ry. Co., General Mortgage Bonds	1958	4%	Mar.-Sept.	80 00	Aug. 20, 1918	1,602 50
5,000 00	United States of America Third Liberty Loan Bonds	1928	4¼%	Mar.-Sept.	212 50	Nov. 30, 1918	4,890 00
3,000 00	Chicago, Burlington & Quincy R. R. Co., General Mortgage Bonds	1958	4%	Mar.-Sept.	120 00	Jan. 27, 1919	2,486 25
3,000 00	Union Pacific Railroad Co., 1st & Refunding Mortgage Bonds	2008	4%	Mar.-Sept.	120 00	Jan. 27, 1919	2,460 00
3,000 00	N. Y. C. Municipal Bonds	1927	4½%	Jan.-July	135 00	Sept. 19, 1919	3,001 88
2,000 00	Pennsylvania R. R. Co., General Mortgage Bonds	1968	5%	June-Dec.	100 00	Oct. 2, 1919	1,827 50
5,000 00	United States of America Third Liberty Loan Bonds	1928	4¼%	Mar.-Sept.	212 50	Oct. 11, 1920	4,535 13
5,000 00	United States of America Fourth Liberty Loan Bonds	1933/38	4¼%	Apr.-Oct.	212 50	Nov. 12, 1920	4,364 13
5,500 00	United States of America Second Liberty Loan Bonds	1942	4¼%	May-Nov.	233 75	Jan. 20, 1921	4,838 44
5,500 00	United States of America Second Liberty Loan Bonds	1942	4¼%	May-Nov.	233 75	Feb. 10, 1921	4,761 44
5,000 00	United States of America Third Liberty Loan Bonds	1928	4¼%	Mar.-Sept.	212 50	Apr. 7, 1921	4,522 12
40,000 00	United States of America Second Liberty Loan Bonds	1942	4¼%	May-Nov.	1,700 00	July 22, 1921	34,461 88
5,600 00	United States of America Second Liberty Loan Bonds	1942	4¼%	May-Nov.	238 00	Aug. 10, 1921	4,912 82
5,000 00	United States of America Second Liberty Loan Bonds	1942	4¼%	May-Nov.	212 50	Dec. 10, 1921	4,858 13
5,000 00	United States of America Second Liberty Loan Bonds	1942	4¼%	May-Nov.	212 50	Dec. 30, 1921	4,854 13
$190,600 00					$8,063 00		$171,672 60

PENSION FUND ACCOUNT

Receipts, 1921

Cash on Hand January 1, 1921			$12,703.84
Contributions of Subscribing Employees:			
Deductions of 3% from Payrolls of			
City Maintenance Account	$8,155.44		
General Account	2,950.12		
Morris K. Jesup Fund Account	4,054.81		
Special Funds Account	115.45		
Corporate Stock Account	365.04		
Incidental Account	5.21		
	$15,646.07		
Personal Contributions of Subscribing Employees	600.82	$16,246.89	
Contributions of Board of Trustees:			
To Equal Contributions of Subscribing Employees		16,246.89	
Return of Contributions (Previously Refunded)		446.59	
Interest on Repayments of Contributions and Interest		10.47	
Interest on Deferred Contributions		33.47	
Income from Investment Fund		6,870.92	
Income from Endowment Fund		50.34	
Interest on Credit Balances		196.06	40,101.63
Investment Fund:			
Proceeds of Sale of Bonds			34,418.12
Bursar's Account			500.00
			$87,723.59

Examined and Approved { ADRIAN ISELIN, A. PERRY OSBORN } *Auditing Committee.*

in account with H. P. DAVISON, *Treasurer*

PENSION FUND ACCOUNT

Disbursements, 1921

Return of Contributions	$3,292.90		
Interest on Contributions Returned	269.21	$3,562.11	
Service Pensions "A"	$253.03		
Service Pensions "E"	988.00		
Pension in Event of Illness, Dismissal, Etc.	416.00		
Death Gratuities Paid Under Section 13	5,525.55		
Gratuity Awarded Under Sections 14 and 27	1,417.24	8,599.82	
Expenses		50.00	$12,211.93
Purchase of Securities:			
Investment Fund			68,559.21
Loan Account			500.00
Cash on Hand December 31, 1921:			
Deposited with the United States Trust Company of New York		$5,952.45	
Deposited with the Colonial Bank (Bursar's Account)		500.00	6,452.45
			$87,723.59

E. and O. E.

NEW YORK, *December 31, 1921.*

H. P. DAVISON, *Treasurer.*

PENSION FUND—SPECIAL FUNDS ACCOUNT

Receipts, 1921

American Museum Liberty Loan No. 1:			
Cash on hand January 1, 1921	$ .05		
Transferred from Interest on Credit Balances	15.64	$ 15.69	
American Museum Liberty Loan No. 2:			
Cash on hand January 1, 1921		.43	
American Museum Liberty Loan No. 3:			
Transferred from Interest on Credit Balances	$12.24		
Transferred from Interest Unexpended, Liberty Loan No. 2	.43	12.67	
American Museum Liberty Loan No. 4:			
Transferred from Interest on Credit Balances		9.67	
American Museum Victory Liberty Loan:			
Transferred from Interest on Credit Balances		7.49	$ 45.95
Gratuity Account:			
Transferred from Pension Fund Account, Gratuity Awarded Under Sections 14 and 27			1,417.24
Interest on Credit Balances:			
Forward from 1920		$100.79	
Earnings to December 31, 1921		19.08	119.87
Welfare Fund:			
Transferred from General Account		$222.13	
Transferred from Interest on Credit Balances		55.75	277.88
			$1,860.94

Examined and Approved { ADRIAN ISELIN, A. PERRY OSBORN } *Auditing Committee.*

PENSION FUND—SPECIAL FUNDS ACCOUNT

Disbursements, 1921

Liberty Loan Accounts:		
Advances for 1920 Accounts		$ 45.52
American Museum Liberty Loan No. 2:		
Transferred to Liberty Loan No. 3 Account		.43
Gratuity Account:		
Payment of Gratuity Awarded Under Sections 14 and 27		1,417.24
Welfare Fund:		222.13
Interest on Credit Balances:		
Transferred to Welfare Fund	$ 55.75	
Transferred to Liberty Loan Accounts	45.04	
		100.79
Cash on Hand December 31, 1921:		
Deposited with United States Trust Company of New York		74.83
		$1,860.94

E. and O. E.

NEW YORK, *December 31, 1921.* H. P. DAVISON, *Treasurer.*

TENTH ANNUAL REPORT
OF THE
PENSION BOARD
OF
THE AMERICAN MUSEUM OF NATURAL HISTORY

FOR THE YEAR 1922

MISCELLANEOUS PUBLICATIONS OF
THE AMERICAN MUSEUM OF NATURAL HISTORY NO. 16

NEW YORK
February 1, 1923

OFFICERS AND MEMBERS OF THE PENSION BOARD

1922

Chairman
FELIX M. WARBURG

Vice-Chairman
RALPH W. TOWER

Treasurer
GEORGE F. BAKER, JR.

Secretary
GEORGE N. PINDAR

Trustee Members

ADRIAN ISELIN
WALTER B. JAMES
A. PERRY OSBORN
FELIX M. WARBURG

Employee Members

HARRY F. BEERS
RALPH W. TOWER
GEORGE N. PINDAR

Bursar
FREDERICK H. SMYTH

Counsel
LEWIS L. DELAFIELD

Consulting Actuary
S. HERBERT WOLFE

Medical Examiner
GEORGE M. MACKENZIE, M. D.

To the President and Trustees of The American Museum of Natural History and to the Subscribers to the Fund:

In accordance with the Rules and Regulations, I have the honor to submit herewith for your consideration the Tenth Annual Report of the activities of the Pension Fund and of its financial operations for the fiscal year ending December 31, 1922.

FELIX M. WARBURG,
Chairman.

February 1, 1923.

ONE scarcely realizes that the Pension System of our institution has passed the first decade of its existence, which fact provides, to my mind, a rather fitting opportunity for a brief notice of the system.

The idea of providing some form of Pension Plan which would take care of superannuated and disabled employees was suggested by President Henry Fairfield Osborn and, after several years of study and discussion, was adopted in 1913 in its present form as a part of the Rules and Regulations of The American Museum of Natural History. Mr. Archer M. Huntington generously contributed the sum of one thousand dollars as the nucleus of a fund for such a purpose upon the acceptance by the Trustees of a practical plan. It might be mentioned, in passing, that institutions similar to our own adopted pension systems at about the same time, starting with an endowment of very considerable amount, that at this time do not report the excellent financial condition and the successful operation displayed by our own fund.

During the past ten years, as a safeguard to our conscience, and to check the exact status of the Pension Fund, we have frequently consulted with Gen. Wolfe, the Actuary, who advised us at the time the Pension Fund was inaugurated. There are undoubtedly few pension funds in operation where such peculiar conditions arise as in our own; peculiar in that its subscribers do not claim all the benefits to which they are entitled, it being well known that many who are eligible to be retired and draw pensions prefer to continue in their usual lines of employment. Therefore, instead of being a source of expense, they remain a source of income. At this date there are twenty-one employees who are eligible for retirement but who have no thought of taking advantage of their privilege. Of these, ten could have retired from three to ten years ago.

Upon the completion of a recent survey by the Actuary, your Committee had a consultation with the Employee Members in

company with the Actuary, and, after hearing all points of view, felt that our experience of the tendency of our employees to continue their work without making any claim on the Pension Fund, although their age and length of service entitled them to it, showed that any danger of a deficiency in the Fund might be theoretical rather than practical. Therefore, we do not feel inclined to recommend at this time any special form of safeguard or the setting aside of an emergency fund on the part of the Trustees, feeling that they, as well as their successors, will at all times, should the need arise, give full consideration to the obligations of the Fund and to the employees. While we hope that this may never occur, it may, at some later date, be necessary to alter the Rules somewhat so as to meet any liabilities which may arise.

It has been suggested that the period of service required for voluntary retirement is too long. About this there is a difference of opinion, best solved by the employer who is conversant with the conditions of employment and their effect upon his employees. In the main, however, we are inclined to feel that a shortening of the service period in our Pension System would best serve the interests of employer and employee alike.

For a number of years it has been evident that the gratuities paid to the beneficiaries of deceased subscribers were inadequate. In the history of our system a number of subscribers have died who have left totally insufficient amounts to care for their survivors, who were either children too young to assist in the up-keep of the family budget, or widows who could not readily step out of the home and support a family unassisted.

So, in order to augment the sums paid according to our plan, it was suggested that a joint committee of Trustees and members be appointed to examine into what is known as group insurance now so generally provided by employers throughout the United States. It is exceedingly gratifying to note that during the past year, through the joint efforts of employer and employee, it was possible to inaugurate this form of insurance for the benefit of all of our employees. The plan provides that all employees, after three months of service, but less than one year, are insured in the sum of $500. After one year, in a sum equal to the employee's annual salary, the maximum insurance, however, not to exceed $5,000 for any one

individual. While the current insurance year had not expired up to December 31st, no losses have been paid on account of this form of protection.

During the year it has been possible through friends to secure treatment for our employees who have been ill in hospitals of the City, many of whom have undergone serious major operations. No one friend of the Museum has given more freely the use of his endowed beds than Mr. Richard B. Kelly, the President of the Broadway Savings Institution who has so recently died. Like his predecessor, Mr. Horace Hutchinson, Mr. Kelly never refused aid to our sick employees, and it is with a deep sense of personal loss that we here record the passing away of this generous friend of our institution.

The year closes on our Pension Fund with a membership of 266 subscribers and with five retired members. One retired employee of long and faithful service has died, mention of whom will be found in another portion of the report.

It is our sincere hope that as never before will the Trustees and Employees of this great institution realize and appreciate what a potent force for good will and efficiency the Pension System has become.

Deceased

MICHAEL F. HANLY

Michael F. Hanly was born in New York City on July 8, 1854. After a service of twenty-five years with a banking house, he came to the Museum in 1898 as an assistant to the late Dr. Anthony Woodward, formerly Librarian of the Museum. In this capacity he served faithfully until 1914, when he was placed in charge of publications, which position he occupied until the time of his retirement in April, 1922. Mr. Hanly served the Museum efficiently and loyally. A man of exemplary character and sterling integrity, his sudden death on September 30, 1922, caused a deep sense of personal loss to his many friends in the institution.

RETIREMENTS

Name	Former Position	Date of Retirement	Yearly Allowance	Period of Pension
H. Ernestine Ripley	Secretary	Jan. 1, 1919	$416.00	16 years
George A. Young	Carpenter	Feb. 1. 1919	253.03	15 years
Adam Hermann	Preparator	Jan. 1, 1920	988.00	life
*Michael F. Hanly	Assistant	Apr. 1, 1922	455.56	23 years
John Burke	Attendant	Sept. 1, 1922	527.29	23 years
James Kenney	Attendant	Sept. 1, 1922	406.16	18 years

*Deceased September 30, 1922.

FINANCIAL STATEMENT 1922

Invested Funds

	Par Value	Book Value
Endowment Fund	$1,258.37	$1,140.39
Investment Fund	224,341.63	203,928.00
Total	$225,600.00	$205,068.39

STATEMENT OF INVESTED FUNDS

Par Value	Securities	Due	Rate of Int.	Interest Payable	Ann. Int.	Date Acquired	Book Value
$5,000 00	Union Pacific Railroad Company, 1st Lien & Refunding Mortgage Bonds	2008	4%	Mar.-Sept.	$200 00	Feb. 26, 1914	$4,687 50
5,000 00	Chicago & Northwestern Railway Company, General Mortgage Bonds	1987	4%	May-Nov.	200 00	July 7, 1914	4,725 00
5,000 00	Pennsylvania Railroad Company, General Mortgage Bonds	1965	4½%	June-Dec.	225 00	June 4, 1915	4,887 50
5,000 00	Baltimore & Ohio Railroad Co., Refunding & General Mortgage Bonds	1995	5%	June-Dec.	250 00	Dec. 29, 1915	5,050 00
5,000 00	Chicago, Milwaukee, St. Paul Railway Company, General & Refunding Mortgage Bonds	2014	4½%	Apr.-Oct.	225 00	May 5, 1916	4,668 75
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5,000 00	Norfolk & Western Railway, First Consol. Mortgage Bonds	1996	4%	Apr.-Oct.	200 00	May 29, 1916	4,681 25
5,000 00	New York Central Railroad Co., Refunding & Improvement Bonds	2013	4½%	Apr.-Oct.	225 00	May 29, 1916	4,706 25
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5,000 00	Louisville & Nashville R. R. Co., Unified Mortgage Bonds	1940	4%	Jan.-July	200 00	Apr. 12, 1917	4,656 25
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1,000 00	Atchison, Topeka & Santa Fe Ry. Co., General Mortgage Bonds	1995	4%	Apr.-Oct.	40 00	Mar. 12, 1918	821 25
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4,000 00	Atchison, Topeka & Santa Fe Ry. Co., General Mortgage Bonds	1995	4%	Apr.-Oct.	160 00	Aug. 19, 1918	3,250 00

$5,000 00	United States of America Third Liberty Loan Bonds	1928	4¼%	Mar.-Sept.	$212 50	Nov. 30, 1918	$4,890 00
3,000 00	Chicago, Burlington & Quincy R. R. Co., General Mortgage Bonds	1958	4%	Mar.-Sept.	120 00	Jan. 27, 1919	2,486 25
3,000 00	Union Pacific Railroad Co., 1st & Refunding Mortgage Bonds	2008	4%	Mar.-Sept.	120 00	Jan. 27, 1919	2,460 00
3,000 00	N. Y. C. Municipal Bonds	1927	4½%	Jan.-July	135 00	Sept. 19, 1919	3,001 88
2,000 00	Pennsylvania R. R. Co., General Mortgage Bonds	1968	5%	June-Dec.	100 00	Oct. 2, 1919	1,827 50
5,000 00	United States of America Third Liberty Loan Bonds	1928	4¼%	Mar.-Sept.	212 50	Oct. 11, 1920	4,535 13
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5,000 00	United States of America Second Liberty Loan Bonds	1942	4¼%	May-Nov.	212 50	Dec. 30, 1921	4,854 13
5,000 00	United States of America Third Liberty Loan Bonds	1928	4¼%	Mar.-Sept.	212 50	Mar. 7, 1922	4,914 73
5,000 00	New York Central Railroad Co., Refunding Mortgage Bonds	2013	5%	Apr.-Oct.	250 00	May 5, 1922	4,831 11
5,000 00	Chicago & Northwestern Railway Company, General Bonds	1987	4%	May-Nov.	200 00	June 15, 1922	4,257 50
5,000 00	Northern Pacific Railway Co., Refunding Mortgage Bonds	2047	5%	Jan.-July	250 00	Aug. 3, 1922	4,888 75
3,000 00	Southern Pacific R. R. Co., Refunding Mortgage Bonds	1955	4%	Jan.-July	120 00	Sept. 15, 1922	2,757 00
2,000 00	Norfolk & Western Ry. Co., Consolidated Mortgage Bonds	1996	4%	Apr.-Oct.	80 00	Sept. 15, 1922	1,893 00
5,000 00	St. Paul, Minneapolis & Manitoba Consolidated	1933	4½%	Jan.-July	225 00	Nov. 13, 1922	4,932 50
3,000 00	New York Central Railroad Co., Refunding & Improvement Bonds	2013	5%	Apr.-Oct.	150 00	Dec. 30, 1922	2,925 70
2,000 00	Northern Pacific Railway Co., Refunding & Improvement Bonds	2047	5%	Jan.-July	100 00	Dec. 30, 1922	1,995 50
$225,600 00					$9,650 50		$205,068 39

PENSION FUND ACCOUNT

Receipts, 1922

Cash on Hand January 1, 1922			$6,452.45
Contributions of Subscribing Employees:			
Deductions of 3% from Payrolls of			
City Maintenance Account	$8,088.50		
General Account	2,928.23		
Morris K. Jesup Fund Account	4,335.90		
Special Funds Account	122.27		
Corporate Stock Account	351.45		
Incidental Account	5.24		
	$15,831.59		
Personal Contributions of Subscribing Employees	797.33		
		$16,628.92	
Contributions of Board of Trustees:			
To Equal Contributions of Subscribing Employees		16,628.92	
Income from Investment Fund	8,434.05		
Income from Endowment Fund	50.34		
		8,484.39	
Interest on Credit Balances		213.04	
			41,955.27
Bursar's Account			500.00
			$48,907.72

Examined and Approved { ADRIAN ISELIN, A. PERRY OSBORN } *Auditing Committee.*

in account with GEORGE F. BAKER, JR.

PENSION FUND ACCOUNT

Disbursements, 1922

Return of Contributions	$1,850.92		
Interest on Contributions Returned	129.78		
Refund of Trustees' Contributions	18.20		
		$1,998.90	
Service Pensions "A"	253.03		
Service Pensions "C"	538.92		
Service Pensions "E"	988.00		
Pension in Event of Illness, Dismissal, Etc.	416.01		
Death Gratuities Paid Under Section 18	942.13		
		3,138.09	
Expenses		400.00	
			$5,536.99
Purchase of Securities:			
Investment Fund			33,372.23
Loan Account			500.00
Cash on Hand December 31, 1922:			
Deposited with the United States Trust Company of New York		$8,998.50	
Deposited with the Colonial Bank (Bursar's Account)		500.00	
			9,498.50
			$48,907.72

E. and O. E.
NEW YORK, *December 31, 1922.*

GEORGE F. BAKER, JR.,
Treasurer.

PENSION FUND—SPECIAL FUNDS ACCOUNT

Receipts, 1922

Welfare Fund:			
Balance January 1, 1922		$55.75	
Transferred from General Account (Allowances from Trustees)	$128.84		
Transferred from Interest on Credit Balances	19.08		
		147.92	
			$203.67
Interest on Credit Balances:			
Balance January 1, 1922		19.08	
Earnings to December 31, 1922		1.83	
			20.91
			$224.58

Examined and Approved } ADRIAN ISELIN, A. PERRY OSBORN } *Auditing Committee.*

PENSION FUND—SPECIAL FUNDS ACCOUNT

Disbursements, 1922

Welfare Fund	$135.84
Interest on Credit Balances:	
Transferred to Welfare Fund	19.08
Cash on Hand December 31, 1922:	
Deposited with United States Trust Company of New York	69.66
	$224.58

E. and O. E.

NEW YORK, *December 31, 1922.*

GEORGE F. BAKER, JR.,
Treasurer.

ELEVENTH ANNUAL REPORT
OF THE
PENSION BOARD
OF
THE AMERICAN MUSEUM OF NATURAL HISTORY

FOR THE YEAR 1923

MISCELLANEOUS PUBLICATIONS OF
THE AMERICAN MUSEUM OF NATURAL HISTORY No. 17

NEW YORK
February 1, 1924

ELEVENTH ANNUAL REPORT
OF THE
PENSION BOARD
OF
THE AMERICAN MUSEUM OF NATURAL HISTORY

For the Year 1923

Miscellaneous Publications of
The American Museum of Natural History No. 17

NEW YORK
February 1, 1924

OFFICERS AND MEMBERS OF THE PENSION BOARD

1923

Chairman
FELIX M. WARBURG

Vice-Chairman
RALPH W. TOWER

Treasurer
GEORGE F. BAKER, JR.

Secretary
GEORGE N. PINDAR

Trustee Members

ADRIAN ISELIN
WALTER B. JAMES
A. PERRY OSBORN
FELIX M. WARBURG

Employee Members

HARRY F. BEERS
RALPH W. TOWER
GEORGE N. PINDAR

Bursar
FREDERICK H. SMYTH

Counsel
LEWIS L. DELAFIELD

Consulting Actuary
S. HERBERT WOLFE

Medical Examiners
GEORGE M. MACKENZIE, M. D.
DANA W. ATCHLEY, M. D.

To the President and Trustees of the American Museum of Natural History and to the Subscribers to the Fund:

In accordance with the Rules and Regulations, I have the honor to submit herewith for your consideration the Eleventh Annual Report of the activities of the Pension Fund and of its financial operations for the fiscal year ending December 31, 1923.

AN undertaking of the nature of our Pension System requires the watchful care of those charged with its supervision. During the past year our subscribers have manifested an increased interest in its operation, growth and success. Frequent constructive criticism indicates that all contributors have its best interests under consideration, and the Pension Board intends whenever possible to do its part to bring about such beneficial changes as will be mutually advantageous.

The success of any pension system is determined by its ability effectively to carry out the relief measures incorporated in the plan. The accumulation of a large and necessary reserve fund is not the only essential detail required for the successful operation of a pension system by a firm or corporation. There must be a close bond of sympathy established between the employer and the employee, similar to the spirit which prevails in our institution.

The steady and continued growth of our accumulated reserve calls for caution and discernment in making safe investments, and an equitable administration of the rules demands judgment and wise decision. For upwards of ten years the thought has prevailed that only by the accumulation of a large capital account would it be possible to judge whether the present rules could be liberalized for the benefit and enjoyment of subscribing employees, and we are happy to state that there is every prospect soon of being able to bring this about without impairing the fund; indeed, by adopting certain suggested adjustments now under way, there is a promise that we may even increase our present satisfactory reserve. Warranty for the proposed

liberalization is found as a result of the adjustments and also through the adoption by the Trustees a year ago of our request "that they as well as their successors will at all times, should the need arise, give full consideration to the obligations of the Fund and to the employees."

More than a decade of experience has satisfactorily demonstrated to us that the service factor of an employee is to be as fully considered as the age factor. Every individual who has given the best years of his working life to one firm or corporation, and particularly those employees in public or semi-public institutions, should be entitled to the comforting thought that they have provided for a few years of freedom in later life in which they may devote themselves to some cherished aspiration.

The suggestion has been made that because of the close contact formed between the subscribers to the Pension Fund and the Pension Board, this is an opportune time to remind subscribing employees that their affiliation with the Pension System does not relieve them of their responsibilities and duty to their employer. It was never intended that our Pension System should act as an intermediary in the working relations existing between subscriber and employer. Neither was it the intent that the institution of a pension system should in any manner impede the employer in his rights to maintain discipline among his workers. Every employee should recognize the justice of the principle that only by conformance with the rules and regulations of any business can it be carried on successfully. The Pension Board, however, does function whenever there is any infringement of the employees' rights which are accorded them by the Pension Rules and Regulations.

To cement even closer the present cordial working relations with the Trustees of the Corporation, through the foresight of President Osborn there has been created a Welfare Committee which will take cognizance of the general health and working conditions of employees to the end that both parties to our co-operative agreement may be benefited.

Again, the close of the year is an opportune time to renew our expressions of appreciation to those who were thoughtful enough to devise a retirement system for the employees of the American Museum of Natural History. Cato said—"The best

way to keep good acts in memory is to refresh them with new," and it is with this thought in mind that we recall to you the feelings which prompted Mr. Archer M. Huntington to establish an initial endowment for the foundation of a Pension System, and the idea of President Osborn in causing the first steps to be taken to that end, together with the cordial and consistent endeavors of the Trustees of the Corporation and the subscribing employees to work together in such harmony as to produce upwards of a decade of successful co-operation.

The members of the Pension Board have at all times manifested a deep interest in the physical well-being of all of the employees of the institution regardless of whether they were participants in the Pension Fund or not. During the past year hospital treatment, medical advice and physical examinations have been freely rendered to those in need. It is our hope that in the near future it will be possible to arrange for a system of periodic physical examinations for every employee. We feel that it is the duty of an individual to exercise as much care over his body as he would over a prized machine. The realization that the human machine is the only one for which there are no spare parts, and that it should occasionally visit the "service station," should be uppermost in the minds of us all.

We would take this opportunity to express to Dr. George M. Mackenzie, who has just been obliged to sever his relations with us, our appreciation of all that he has done to aid those of our employees who have been sick or disabled. In December last, Dr. Dana W. Atchley, of the Presbyterian Hospital, was selected as the successor to Dr. Mackenzie. Personally interested in the work of the institution, he has also shown an abiding interest in its personnel. Through the efforts of these physicians, very satisfactory hospital arrangements have been concluded for our employees.

The attention of the trained legal mind of Mr. Lewis L. Delafield has been required in several perplexing matters, and although he gives his services gratuitously, the same thought and care has gone into these matters as is applied by him to the complicated cases coming to his office. At the present time he is engaged in putting into legal terminology changes which have been proposed as an improvement in the present system.

The new year opens auspiciously, and if we are able to accomplish the ends for which we are striving, there is no reason why its close should not witness a greater success than any we have known heretofore.

FELIX M. WARBURG,
Chairman.

February 1, 1924.

STATEMENT OF MEMBERSHIP

1923

ACTIVE

Subscribing Employees, December 31, 1922		266
New Subscribers, January 1-December 31		37
		303
Resignations	13	
Retired	4	
Deaths	1	18
Membership December 31, 1923		285

RETIRED

Pensioned Employees, December 31, 1922	5	
Pensions allowed during 1923	4	
	9	
Deaths	1	8
Total Membership, December 31, 1923		293

STATEMENT OF PENSION ALLOWANCES

Name	Yearly Amount	Date of Retirement	Period of Payment
H. Ernestine Ripley	$416.00	Jan. 1, 1919	16 years
George A. Young	253.03	Feb. 1, 1919	15 years
Adam Hermann	988.00	Dec. 31, 1919	Life
James Kenney	406.16	Sept. 1, 1922	18 years
*John Burke	527.29	Sept. 1, 1922	23 years, plus
A. E. Anderson	250.00	Jan. 1, 1923	20 years
Herman Langfelder	390.59	June 1, 1923	15 years, 9 months
James McGovern	458.62	Sept. 1, 1923	17 years, 3 months
George J. Beeth	515.54	Nov. 21, 1923	18 years, 9 months

*Deceased Sept. 21, 1923.

Deceased

PHILIPP COHN

Philipp Cohn was born in Germany, September 7, 1851. He came to the Museum in 1909, where he served first as a worker in the Department of Physiology, later becoming an assistant osteologist, in which position he was engaged at the time of his last illness. He was very efficient and possessed of a quiet and kindly disposition and those traits of character which made him a friendly associate with other employees. He died December 10, 1923.

JOHN BURKE

John Burke was born November 2, 1850, in Ireland. He came to the Museum in 1898 and was assigned to the Department of the Superintendent of Buildings. Generous to a fault, his ready wit and genial companionship made him welcome among his associates. Such was his interest in the institution where he worked that it was with extreme reluctance that he was enforced to retire because of ill health and the infirmities of age. The absence of his cheerful spirit was greatly felt among his co-workers at the time of his retirement and the notice of his passing on September 21, 1923, was received with a keen sense of loss.

FINANCIAL STATEMENT 1923

Invested Funds

	Par Value	Income	Book Value
Endowment Fund	$1,258.37	$50.34	$1,140.39
Investment Fund	264,341.63	11,525.16	243,168.19
Total	$265,600.00	$11,575.50	$244,308.58

STATEMENT OF INVESTED FUNDS

Par Value	Securities	Due	Rate of Int.	Interest Payable	Ann. Int.	Date Acquired	Book Value
$5,000 00	Union Pacific Railroad Company, 1st Lien & Refunding Mortgage Bonds	2008	4%	Mar.-Sept.	$200 00	Feb. 26, 1914	$4,687 50
5,000 00	Chicago & Northwestern Railway Company, General Mortgage Bonds	1987	4%	May-Nov.	200 00	July 7, 1914	4,725 00
5,000 00	Pennsylvania Railroad Company, General Mortgage Bonds.	1965	4½%	June-Dec.	225 00	June 4, 1915	4,887 50
5,000 00	Baltimore & Ohio Railroad Co., Refunding & General Mortgage Bonds	1995	5%	June-Dec.	250 00	Dec. 29, 1915	5,050 00
5,000 00	Chicago, Milwaukee, St. Paul Railway Company, General & Refunding Mortgage Bonds	2014	4½%	Apr.-Oct.	225 00	May 5, 1916	4,668 75
5,000 00	Atchison, Topeka & Santa Fe Railway Company, General Mortgage Bonds	1995	4%	Apr.-Oct.	200 00	May 29, 1916	4,687 50
5,000 00	Norfolk & Western Railway, First Consol. Mortgage Bonds	1996	4%	Apr.-Oct.	200 00	May 29, 1916	4,681 25
5,000 00	New York Central Railroad Co., Refunding & Improvement Bonds	2013	4½%	Apr.-Oct.	225 00	May 29, 1916	4,706 25
5,000 00	Southern Pacific Railroad Co., First Refunding Mortgage Bonds	1955	4%	Jan.-July	200 00	May 29, 1916	4,533 75
5,000 00	Northern Pacific Railway Co., Refunding & Improvement Mortgage Bonds	2047	4½%	Jan.-July	225 00	July 17, 1916	4,825 00
5,000 00	Illinois Central Railroad Co., Refunding Mortgage Bonds.	1955	4%	May-Nov.	200 00	Oct. 18, 1916	4,518 75
5,000 00	Chicago, Burlington & Quincy R. R. Company, General Mortgage Bonds	1958	4%	Mar.-Sept.	200 00	Dec. 30, 1916	4,717 50
5,000 00	Louisville & Nashville R. R. Co., Unified Mortgage Bonds	1940	4%	Jan.-July	200 00	Apr. 12, 1917	4,656 25
6,000 00	Baltimore & Ohio R. R. Co. (Pittsburgh, L. Erie & W. Va.), Refunding Mortgage Bonds	1941	4%	May-Nov.	240 00	July 16, 1917	4,808 75
5,000 00	Pennsylvania R. R. Co., General Mortgage Bonds	1965	4½%	June-Dec.	225 00	Oct. 19, 1917	4,608 75
1,000 00	Atchison, Topeka & Santa Fe Ry. Co., General Mortgage Bonds	1995	4%	Apr.-Oct.	40 00	Mar. 12, 1918	821 25
1,000 00	Norfolk & Western Ry. Co., Consolidated Bonds	1996	4%	Apr.-Oct.	40 00	Mar. 12, 1918	831 25
2,000 00	Union Pacific R. R. Co., 1st Lien Refunding Mortgage Bonds	2008	4%	Mar.-Sept.	80 00	Mar. 12, 1918	1,592 50
2,000 00	Southern Pacific R. R. Co., 1st Refunding Mortgage Bonds	1955	4%	Jan.-July	80 00	Mar. 12, 1918	1,582 50
5,000 00	Great Northern Ry. Co., 1st Refunding Mortgage Bonds..	1961	4¼%	Jan.-July	212 50	May 10, 1918	4,456 25
4,000 00	Atchison, Topeka & Santa Fe Ry. Co., General Mortgage Bonds	1995	4%	Apr.-Oct.	160 00	Aug. 19, 1918	3,250 00
2,000 00	Chicago, Burlington & Quincy R. R. Co., General Mortgage Bonds	1958	4%	Mar.-Sept.	80 00	Aug. 20, 1918	1,602 50
5,000 00	United States of America Third Liberty Loan Bonds	1928	4¼%	Mar.-Sept.	212 50	Nov. 30, 1918	4,890 00
3,000 00	Chicago, Burlington & Quincy R. R. Co., General Mortgage Bonds	1958	4%	Mar.-Sept.	120 00	Jan. 27, 1919	2,486 25

Par Value	Securities	Due	Rate of Int.	Interest Payable	Ann. Int.	Date Acquired	Book Value
3,000 00	Union Pacific Railroad Co., 1st & Refunding Mortgage Bonds	2008	4%	Mar.-Sept.	120 00	Jan. 27, 1919	2,460 00
3,000 00	N. Y. C. Municipal Bonds	1927	4½%	Jan.-July	135 00	Sept. 19, 1919	3,001 88
2,000 00	Pennsylvania R. R. Co., General Mortgage Bonds	1968	5%	June-Dec.	100 00	Oct. 2, 1919	1,827 50
5,000 00	United States of America Third Liberty Loan Bonds	1928	4¼%	Mar.-Sept.	212 50	Oct. 11, 1920	4,535 13
5,000 00	United States of America Fourth Liberty Loan Bonds	1933/38	4¼%	Apr.-Oct.	212 50	Nov. 12, 1920	4,364 13
5,500 00	United States of America Second Liberty Loan Bonds	1942	4¼%	May-Nov.	233 75	Jan. 20, 1921	4,838 44
5,500 00	United States of America Second Liberty Loan Bonds	1942	4¼%	May-Nov.	233 75	Feb. 10, 1921	4,761 44
5,000 00	United States of America Third Liberty Loan Bonds	1928	4¼%	Mar.-Sept.	212 50	Apr. 7, 1921	4,522 12
40,000 00	United States of America Second Liberty Loan Bonds	1942	4¼%	May-Nov.	1,700 00	July 22, 1921	34,461 88
5,600 00	United States of America Second Liberty Loan Bonds	1942	4¼%	May-Nov.	238 00	Aug. 10, 1921	4,912 82
5,000 00	United States of America Second Liberty Loan Bonds	1942	4¼%	May-Nov.	212 50	Dec. 10, 1921	4,858 13
5,000 00	United States of America Second Liberty Loan Bonds	1942	4¼%	May-Nov.	212 50	Dec. 30, 1921	4,854 13
5,000 00	United States of America Third Liberty Loan Bonds	1928	4¼%	Mar.-Sept.	212 50	Mar. 7, 1922	4,914 73
5,000 00	New York Central Railroad Co., Refunding Mortgage Bonds	2013	5%	Apr.-Oct.	250 00	May 5, 1922	4,807 50
5,000 00	Chicago & Northwestern Railway Company, General Bonds	1987	4%	May-Nov.	200 00	June 15, 1922	4,257 50
5,000 00	Northern Pacific Railway Co., Refunding Mortgage Bonds.	2047	5%	Jan.-July	250 00	Aug. 3, 1922	4,888 75
3,000 00	Southern Pacific R. R. Co., Refunding Mortgage Bonds	1955	4%	Jan.-July	120 00	Sept. 15, 1922	2,757 00
2,000 00	Norfolk & Western Ry. Co., Consolidated Mortgage Bonds	1996	4%	Apr.-Oct.	80 00	Sept. 15, 1922	1,893 00
5,000 00	St. Paul, Minneapolis & Manitoba Consolidated	1933	4½%	Jan.-July	225 00	Nov. 13, 1922	4,932 50
3,000 00	New York Central Railroad Co., Refunding & Improvement Bonds	2013	5%	Apr.-Oct.	150 00	Dec. 30, 1922	2,925 75
2,000 00	Northern Pacific Railway Co., Refunding & Improvement Bonds	2047	5%	Jan.-July	100 00	Dec. 30, 1922	1,995 50
2,000 00	New York Central Railroad Co., Refunding & Improvement Bonds	2013	5%	Apr.-Oct.	100 00	Feb. 9, 1923	1,950 50
3,000 00	Pennsylvania Railroad Co., Gen. Mortgage Bonds	1968	5%	June-Dec.	150 00	Feb. 9, 1923	3,027 00
5,000 00	Illinois Central Railroad Co., Refunding Bonds	1965	5%	May-Nov.	250 00	Mar. 31, 1923	4,950 00
3,000 00	Oregon Short Line Railroad Co., 1st Cons. Bonds	1946	5%	Jan.-July	150 00	Apr. 7, 1923	3,027 00
2,000 00	Oregon Short Line Railroad Co., 1st Cons. Bonds	1946	5%	Jan.-July	100 00	Apr. 9, 1923	2,018 00
5,000 00	St. Paul, Minneapolis & Manitoba Ry. Co. Cons. Bonds	1933	4½%	Jan.-July	225 00	June 6, 1923	4,832 50
5,000 00	Louisville & Nashville Railroad Co., Unified Bonds	1940	4%	Jan.-July	200 00	July 10, 1923	4,470 00
5,000 00	Illinois Central Railroad Co. Bonds	1955	5%	May-Nov.	250 00	Aug. 6, 1923	4,998 75
5,000 00	Union Pacific Railroad Co., 1st Ref. Mortgage Bonds	2008	5%	Mar.-Sept.	250 00	Oct. 8, 1923	4,982 50
5,000 00	Montana Central Ry. Co., 1st Mortgage Bonds	1937	5%	Jan.-July	250 00	Nov. 26, 1923	5,007.50
$265,600 00					$11,575 50		$244,308 58

PENSION FUND ACCOUNT

Receipts, 1923

Cash on Hand January 1, 1923			$9,498.50
Contributions of Subscribing Employees:			
Deductions of 3% from Payrolls of			
City Maintenance Account	$8,287.29		
General Account	4,621.00		
Morris K. Jesup Fund Account	3,852.20		
Special Funds Account	206.96		
Corporate Stock Account	521.64		
	$17,489.09		
Personal Contributions of Subscribing Employees	1,437.11		
Interest on Deferred Contributions	70.34		
		$18,996.54	
Contributions of Board of Trustees:			
To Equal Contributions of Subscribing Employees		18,996.54	
Income from Investment Fund	10,393.43		
Income from Endowment Fund	50.34		
		10,443.77	
Interest on Credit Balances		210.66	
			48,647.51
Bursar's Account			500.00
			$58,646.01

Examined and Approved { ADRIAN ISELIN, A. PERRY OSBORN } *Auditing Committee.*

PENSION FUND ACCOUNT

Disbursements, 1923

Return of Contributions	$2,048.58		
Interest on Contributions Returned	137.39		
		$2,185.97	
Service Pensions "A"	1,039.92		
Service Pensions "B"	250.00		
Service Pensions "C"	382.28		
Service Pensions "E"	988.00		
Pensions in Event of Illness, Dismissal, etc.	473.28		
Death Gratuities Paid Under Section 18	931.45		
		4,064.93	
Expenses		50.00	
			$6,300.90
Purchase of Securities:			
Investment Fund			39,263.75
Loan Account			500.00
Cash on Hand December 31, 1923:			
Deposited with the United States Trust Company of New York		$12,081.36	
Deposited with the Colonial Bank (Bursar's Account)		500.00	
			12,581.36
			$58,646.01

E. and O. E.

NEW YORK, *December 31, 1923.*

GEORGE F. BAKER, JR.,
Treasurer.

PENSION FUND—SPECIAL FUNDS ACCOUNT

Receipts, 1923

Welfare Fund:			
Balance January 1, 1923		$67.83	
Transferred from General Account (Allowances from Trustees)	$333.52		
Transferred from Interest on Credit Balances	3.64		
		337.16	
			$404.99
Interest on Credit Balances:			
Balance January 1, 1923		1.83	
Earnings to December 31, 1923		1.81	
			3.64
			$408.63

Examined and Approved { Adrian Iselin, A. Perry Osborn } *Auditing Committee.*

in account with GEORGE F. BAKER, JR., *Treasurer*

PENSION FUND—SPECIAL FUNDS ACCOUNT

Disbursements, 1923

Welfare Fund	$333.52
Interest on Credit Balances:	
Transferred to Welfare Fund	3.64
Cash on Hand December 31, 1923:	
Deposited with United States Trust Company of New York	71.47
	$408.63

E. and O. E.

NEW YORK, *December 31, 1923.*

GEORGE F. BAKER, JR.,
Treasurer.

STATUS OF THE COLLECTIONS OF THE AMERICAN MUSEUM OF NATURAL HISTORY IN THE YEAR 1923

Extract from the Fifty-fifth Annual Report of the President, entitled "The American Museum and the World"

HENRY FAIRFIELD OSBORN

Miscellaneous Publications of The American Museum of Natural History No. 18

THE AMERICAN MUSEUM AND THE WORLD[1]

By President Henry Fairfield Osborn

KING HENRY. O heaven! that one might read the book of fate;
And see the revolution of the times
Make mountains level, and the continent
Weary of solid firmness, melt itself
Into the sea! and, other times, to see
The beachy girdle of the ocean
Too wide for Neptune's hips; how chances mock,
And changes fill the cup of alteration
With divers liquors!

—*Shakespeare, Henry IV*

TO bring the world of nature within the walls of a great city to those who cannot otherwise see the world, who cannot explore or travel, who cannot go very far beyond their immediate environment—this seems to be the primary object of a great municipal museum. We cannot be local. We cannot be provincial. We cannot confine ourselves to the boundaries even of a great country like our own. We must extend to other lands and seas and to all parts of the globe. We must give a vision, not only of the earth but of the depths of the seas below and of the firmament above. In a city like New York, with people from all parts of the globe, we must give the people the inspiration, the broad vision, the largeness of mind, and the breadth of sympathy which come to their more fortunate brethren who are able to travel and explore. By our methods we show not only the animals and plants, but where and how they live.

This compass of the world of nature is not a matter of recent decision, but extends back to the very foundation period of the Museum and to the original plan of the building. In fact, the American Museum began in 1869, in Albert S. Bickmore's time, with collections from the Old World—from the East Indies, from southern Asia, from Africa—because in the period of our foundation the whole science of natural history had been built up by the great French and British savants on collections from the Eastern Hemisphere. It was only through the labors of great American naturalists and explorers like John J. Audubon, Spencer F. Baird and F. V. Hayden that the riches of North America began to be

[1]Prepared in connection with the *Fifty-fifth Annual Report* (Year 1923) of The American Museum of Natural History.

fully appreciated and the American Museum waked up to the fact that it must thoroughly explore North America itself, in co-operation with the United States National Museum and other great museums of this country.

Then it was realized that South America had been sadly neglected and overlooked, and our late Curator Allen repeatedly urged the exploring of this continent, which finally resulted in a series of highly successful expeditions, which are still going on. Then in the beginning of the year 1908 a great new movement started for fresh exploration, along entirely new and much more thorough lines, in the Eastern Hemisphere, beginning in Africa and continuing with our present surveys and discoveries in Asia. Nor was Europe forgotten: Italy, Spain, France, Great Britain, Scandinavia and Germany were visited, for both original and exchange material, illustrative especially of its palæontologic history and the pre-history of man. In the meanwhile, expeditions were sent both to the North Polar and to the South Polar regions, and contact was made with great Arctic and Antarctic explorers. Thus, during the past fifty-five years, the American Museum has gradually become a *World Museum* in its collections, and it is expressing this great fact in its building units.

Our chief concern during the last two decades has been to secure the fast vanishing world of Nature, especially in Asia, Africa and Polynesia, for it is evident that man and civilization will before long obliterate animate nature in the greater part of the globe and will destroy or blemish inanimate nature where it is not protected by the national and international spirit of conservation. In order to demonstrate the present resources of the American Museum in its world collections and to show clearly the parts of the globe from which we have little or nothing, a series of maps is presented herewith by the Chief Curators in the Scientific Departments of the Museum. These have been carefully edited and arranged by Assistant Director Murphy. The scientific departments as more or less organized in 1924 are as follows:

Prehistory of the Earth

Astronomy—the earth, the sun, the heavens—Astronomic Halls.

Mineralogy—minerals and gems—The Morgan Hall.

Geology—geography, physiography—Halls of Geology.

Life History of the Earth

Invertebrate Palæontology—lower fossil life—Gallery and Halls.

Vertebrate Palæontology—higher fossil life—Five Halls in sequence.

Existing Life of the Earth

Lower invertebrates of sea and land—Darwin Hall and Gallery.

Entomology—insect life of the earth—Insect Life Hall.

Ichthyology—fossil and living fishes—The Hall of Fishes.

Herpetology—living amphibians and reptiles—Hall of Reptiles.

Ornithology—living birds of the world—Four Halls of Birds.

Mammalogy—living mammals of the world—Six Halls of Mammals.

Man—Prehistory and Living Races

Archæology—prehistory of man—Archæologic Hall.

Anthropology—living races of man—Thirteen Halls of Anthropology.

Comparative and Human Anatomy—Hall of Osteology.

Nature and Man—public health—Education Hall.

A survey of the collections and exhibitions in the various departments of the Museum shows a vast increase over that recorded by the inventory of 1911.* The greater part of the new material has been derived from the constantly extending scientific expeditions of the Museum, most of which have been made possible through the generosity of its friends. The collections have been extended further through the outright gift or bequest of material and through exchanges with kindred institutions in many parts of the world.

NORTH AMERICA

Among the chief collectors for the Museum in North America are Messrs. Anderson, Andrews, Anthony, Batty, Boas, Brown, Chapman, Comer, Elliot, Farrand, Figgins, Gidley, Goddard, Granger, Gregory, Hovey, Lowie, Lutz, Matthew, Mearns, Morris, Nelson, Noble, Osborn, Peary, Putnam, Richardson, Saville, Smith, Spinden, Stefansson, Stone, Thomson, Townsend, Watson, Wheeler, Whitfield, Wissler, Wortman.

North America is naturally more richly represented in practically all departments than any of the other great divisions of the earth. Only the region of Central Ungava and a large area west

*Osborn, H. F., 1911. *The American Museum of Natural History—Its Origin, Its History, The Growth of Its Departments to December 31, 1909.*

of Hudson's Bay may be said to be poorly represented by specimens in the departments pertaining to the Divisions of Geology, Zoology and Anthropology.

Geology and Invertebrate Palæontology is represented by collections numbering almost three-quarters of a million specimens from the world as a whole, including fossils, rocks, meteorites, etc., from practically all of the United States, the central and western British provinces and from Alaska. Within our own territory, New York, Indiana and Oklahoma are most strongly represented, with various other States such as Georgia, California and Minnesota following hard. The Curators have compiled a map in great detail, showing the proportionate distribution of collections in all States and other political units of North America and other continents, from a few of which as many as 400,000 specimens are noted.

Minerals are computed somewhat differently, and the Curator has indicated the percentage of the Museum's total collection made up of specimens from various major divisions of the globe. While this system gives no indication of the completeness of our series with reference to all known forms of minerals, it does indicate clearly the parts of the world adequately represented in the Museum, those (such as Australia, Eastern Asia and South America) which are poorly represented, and still others (such as Africa, Madagascar and Arabia) from which we have practically no material. As regards North America, 36 per cent. of the Museum's mineral collections are from the area of the United States, and 6 per cent. from Canada, Alaska, and the Arctic lands to the northward.

In *Vertebrate Palæontology,* 20,000 fossil mammals and 6,000 fossil reptiles of the collections are North American. Of these by far the greatest portion was secured from the Great Plains and Rocky Mountain regions. Considerable material, especially of the Proboscidea, represents Alaska, Indiana, Texas and New York. California has yielded material from the La Brea tar pits as well as Mesozoic reptiles. Oregon, Arizona, Arkansas, Florida, South Carolina, New Jersey and other states have contributed smaller amounts.

The *Marine Life* and *Invertebrates of the World,* other than Insects, are richly represented by specimens from North and Cen-

tral America and the West Indies, except throughout a zone extending through eastern Labrador and southern Alaska. Every State of the Union has contributed its quota, the total number of identified and catalogued North American specimens being well over 100,000. California is represented by over 11,000 specimens, Massachusetts by 3,000. The great bulk of the Canadian collections was obtained in Nova Scotia, though practically all parts of southern Canada are represented. The several Arctic expeditions in which the Museum has had a part have enriched its invertebrate collections by specimens from North Greenland and other areas within the Arctic Circle.

The *Insect* collections from North America are so large that it would be out of the question to number either species, specimens, or localities. The plotted information, however, shows that the area of the United States, Central America, and the West Indies is well represented, the Middle Atlantic States, Florida and parts of the Rocky Mountain region being richest, although collecting localities include Newfoundland, Labrador, both Southwestern and Arctic Alaska, and Western Greenland. The northern parts of North America may be said, in general, to be rather weakly represented by specimens, but the insect fauna there is not rich.

Since only fresh-water *Fishes* lend themselves to a continental survey scheme, the Curators have prepared separate tables for oceanic and river forms. The fresh-water fishes of the continent, however, make up 9 per cent of our total collection and include 80 per cent. of the genera recorded from the area. This is an indication of the richness of the Museum's ichthyological collections, which comprise some 30,000 specimens. One quarter of our collection comes from the Atlantic and another from the Pacific, and these include, for the respective regions, 70 per cent. of the total number of known living genera.

In *Reptiles and Amphibians,* North America is again the best represented of the continents, partly because it is the region which has been most worked by Staff members of the Museum, but also because it is rather richer in genera and species of urodeles than any of the other great divisions of the earth. From the greater part of the Atlantic seaboard of the United States, from the northern Gulf Coast, the Great Basin, Lower California, the Olympic

Mountain region, and several areas of Central America, nearly all known species of reptiles and batrachians have been obtained by the Museum. Throughout the remainder of the parts of the continent inhabited by animals of these groups, from 35 to 75 per cent. of the fauna is represented in the collections, which have grown nearly 1,000 per cent. during the course of fourteen years. Prior to 1900 we had no study collections of reptiles and amphibians; in 1909 there were about 6,000 specimens; today we have more than 57,000 adult specimens, and our collections may be ranked among the five largest in the country.

The Museum possesses an essentially complete collection of North American *Birds*. The representation is naturally larger than that from any other continent, partly because of the many historic collections which have been bequeathed to the Museum, and also because the wonderfully extensive private collections of Dr. Jonathan Dwight and Dr. Leonard C. Sanford are included in the present inventory. Not a single species of living or recently extinct bird from the part of the continent north of Mexico is lacking, with the possible exception of Pallas's cormorant, which is a doubtful member of the North American avifauna. Among the Museum's treasures are three great auks (including Dr. Sanford's example and the specimen deposited with us by Vassar College), also adequate series of the Labrador duck, the passenger pigeon, the Carolina parakeet, the Eskimo curlew, the heath hen, and other striking forms which have been completely or nearly extirpated by man.

From the regions of Mexico and Central America, we have examples of all the known genera. With the exception of the Dwight Costa Rican collection and the Museum's Nicaraguan series, we have, however, no really adequate Central American material, being especially weak in the avifauna of Guatemala, Honduras, extreme southern Mexico and eastern Panama.

From the West Indies, the Museum possesses very nearly all the known species, although many of these are represented by only a specimen or two.

The distribution of the collections of *Mammals of the World* follows that of most of the other zoological groups, except that the Arctic lands are extremely well represented, the principal voids being in the area from Ungava to western Alaska and in part of

the Mississippi valley. North America is represented by some 22,330 skins and skulls, of which California, with slightly more than 2,000 specimens, has the largest proportion of any single State, while Iowa, Indiana, South Carolina, Kentucky and Illinois are most poorly represented. British Columbia comes first and Newfoundland last in the Canadian area.

The division of the *Sciences of Man* has comprehensive *Archæological* and *Anatomical* collections from well distributed areas in eastern, southern and western North America, as well as general collections from the greater part of the continent, except the usually little explored regions of north central Canada, Ungava, and the far Northwest. In the case of *Ethnographic* material, the facts are rather the reverse, our principal treasures coming from the West and Northwest, the northern part of the Mississippi Valley, and the Arctic Coast including Greenland; while southeastern North America, including the West Indies, is very poorly represented except for small portions of Florida and the southern Appalachians.

SOUTH AMERICA

Among the chief collectors in South America are Messrs. Anthony, Bandelier, Beck, Beebe, Brown, Carriker, Chapman, Cherrie, Collins, Day, Miller, Murphy, Roosevelt, Spinden, Watkins.

Throughout most of this continent, *Geology and Invertebrate Palæontology* is represented by from 25 to 1,000 specimens from each of the great political divisions. Argentina is the source of almost 1,000 specimens, while Ecuador, Paraguay and Uruguay are without representation.

In spite of the richness of South America in *Mineral* resources, only one per cent. of the Museum's total collection comes from Brazil, one per cent. from Chile, and less than one-half of one per cent. from the remaining territory.

In *Vertebrate Palæontology,* the South American section comprises about 4 per cent. of the total collection of fossil mammals and a smaller percentage of fossil reptiles. The nucleus of this is the Cope Pampean Collection, from Patagonia, with other collections from the same country made by Mr. Barnum Brown. A small amount of miscellaneous material represents Ecuador and other parts of South America. A considerable amount of late Tertiary and Pleistocene material has been secured from Cuba, Porto Rico and Jamaica.

In the Department of *Lower Invertebrates* we have an excellent series of fluviatile species, as well as terrestrial forms, such as myriapods, land mollusks, isopods and worms, from northern South America, both coastal and interior. The remainder of the collections comes chiefly from the fringes of the continent but includes every country, as well as outlying islands such as the Galapagos, Juan Fernandez, the Fuegian Islands, South Shetlands, Falklands, and South Georgia. The total number of South American specimens is 11,430. The greatest single collections from the continent bear labels referring to British Guiana and Patagonia.

The distribution of South American *Insect* collections is in the main similar to that of other invertebrates, except that the interior of the great Amazon Basin is surprisingly well represented by localities; and Doctors Crampton and Lutz conducted a successful expedition in British Guiana. In most instances this means but a few specimens, or perhaps only a single specimen, but in the case of no other branch of science, except Ornithology, is the continent of South America so generally covered.

Nine per cent. of our total collection of *Fishes* comes from South America, representing 60 per cent. of the genera known from that continent.

In *Amphibians and Reptiles* we have collections from the greater part of the continent, though large areas in the interior are as yet unrepresented. From several important stations in the Andes and from British Guiana, 75 to 100 per cent. of the reptile and amphibian fauna has been obtained.

Our South American collection of *Birds* is constantly becoming more rounded out. We have excellent general material from the greater part of the continent, with the exception of eastern and southeastern Brazil and one or two other smaller areas. In general, we are strong throughout the Andean system, our intensive collections from Colombia and Ecuador being incomparably the finest in the world. Important among the recent South American accessions are the birds collected during Dr. Chapman's numerous expeditions, the Roosevelt-Cherrie collections from Matto Grosso, and others from Santa Marta, Peru, Chile, southern Patagonia and Tierra del Fuego.

Curator Anthony's work has led to a great increase in our collections of South American *Mammals*. Ecuador, represented by

more than 5,000 specimens, leads the list, with Colombia second and Venezuela third. All the other republics have sent at least a small quota, but Chile, Patagonia, Paraguay, and most of north central South America are as yet very weakly covered by our material. The total number of mammals from South America is 11,650.

In the Division of *Anthropology,* the only comprehensive *Archæological* collections are from Peru, the mouth of the Amazon, and the Caribbean coast of Colombia. General collections in this field represent the greater part of the west coast of the southernmost tip of the continent. *Anatomical* material covers much the same field, Bolivia having yielded the greater part. In modern *Ethnographic* collections, the Cape Horn region, northern Chile, central Brazil and Colombia are represented by small general collections, the only series approaching completeness being from Venezuela and the borderlands of northwestern Brazil.

EURASIA

The chief collectors and explorers of Eurasia have been Messrs. Andrews, Berkey, Bickmore, Bogoras, Brown, Burden, Buxton, Faunthorpe, Granger, Jochelson, Laufer, Morris, Nelson, Osborn, Pope, Vernay. The great recent expansion of our Asiatic collections is due to the First, Second and Third Asiatic Expeditions, under Andrews; to the Indian Expedition under Faunthorpe and Vernay; to the expedition to the Siwalik Hills of India and Burma, under Brown.

In *Geology and Invertebrate Palæontology* the Museum collections cover Eurasia at least thinly from Sumatra to Spitzbergen and from eastern Siberia to Spain. Portugal, Baluchistan, Tibet, Korea, the Malay Peninsula, and the greater part of the East Indies are unrepresented. The blank spaces of Mongolia are, however, being filled in by still unaccessioned material from the Third Asiatic Expedition. Japan, Siberia, Arabia, etc., have yielded both rock specimens and aërolites. Central Europe, particularly Germany and Austria, has yielded our richest collections, the number of invertebrate fossils from these areas alone exceeding 23,000.

The distribution of our *Minerals* is somewhat similar, with a weaker showing, however, from eastern Asia and Malaysia. Southern Europe, from which 14 per cent. of our entire collection of minerals has been derived, comes second to the United States. Western Europe, comprising France, Spain and the British Isles, has yielded 10 per cent.; Central Europe, from Denmark to the Balkans, 8 per cent. Scandinavia and Iceland have furnished 5 per cent.

In *Vertebrate Palæontology,* the collections from Eurasia comprise about 7 per cent. of the total collections of fossil vertebrates. Their most important constituents are the material from Mongolia and Sze-Chuan, China, secured by the Third Asiatic Expedition, and from the Siwalik Hills of India by Mr. Barnum Brown. Other important items are the ichthyosaur skeletons from the Jurassic of Bavaria and a series of casts of fossil man from various localities in Europe.

In *Lower Invertebrates,* the greater part of our Old World collections comes from Europe, particularly from western Europe and the Mediterranean Basin. The European specimens number 14,235, of which 5,000 are Mediterranean and 3,000 British. The Asiatic collection is even larger than the European, but the great bulk of material comes from the seaboard of southern Asia, all of the continent north of the Himalayas and stretching from the Baltic to the Sea of Okhotsk being a blank on the distributional map. Of all parts of the world, this region most needs working from the point of view of this department. Large series of mollusks from Ceylon, the Indian Ocean, China, Turkey, etc., represent in part the work of the Third Asiatic Expedition and that of Mr. Barnum Brown. Other material from China has not yet been officially accessioned.

The collections of *Insects* cover Eurasia, as well as the other continents, more evenly than those of any other department of the Museum. This is doubtless due to the fact that a considerable portion of our Old World collection has been derived from private enthusiasts who added extensively to their collections by purchase and by exchange. Practically no political division, from Iceland to Bering Sea and from the East Indies to Nova Zembla, has failed to yield at least a small quota of insects to the American Museum. In many cases, of course, the representation from any given region is slight.

Five per cent. of our fresh-water *Fishes* comes from Europe and 15 per cent. from Asia. From the latter division of the continent we now have half the number of known genera, Europe being considerably better represented. Four per cent. of our total collection of fishes is made up of Mediterranean marine forms.

In *Amphibians and Reptiles,* only the southerly fringes of the great continent of Eurasia have supplied adequate series. We have

more than one-half of the existing species from Great Britain, western continental Europe, Austria, and parts of Asia, but the only regions adequately worked thus far are eastern China and Formosa.

The Museum possesses no general collection of *Birds* covering the vast territory of Eurasia. We have, however, excellent material from several widely separated parts of the continent. Two of our older collections are largely made up of European birds, the first of these being that of Prince Maximilian of Wied, and the second, the Mearns collection. Dr. Dwight has most of the European water birds, together with considerable additional material from Scandinavia.

In general it may be said that most of the European genera are represented in the Museum, but that we have only a small proportion of the known species, and certain of the latter are represented only by African migrants obtained during the Congo Expedition.

Few parts of Asia are well covered by the ornithological collections, and we have little or nothing from Asia Minor, Persia, Turkestan or western Siberia. The Buxton collection from eastern Siberia gives us at least a fragmentary representation which is rich in coastal species and water fowl. Both Dr. Dwight and the Museum have long owned small but well chosen collections of Chinese birds which are being rapidly enriched through the field work of the Third Asiatic Expedition. Acquisition by exchange of two considerable collections from Japan has helped to fill important gaps from that part of Asia, while India, Assam, Siam, Ceylon and other parts of southern Asia have yielded important material through the field work of Murray, Crozier, Beebe, Bulkley, and more recently that of the Faunthorpe-Vernay Indian Expedition.

Of all the particularly important parts of Asia, the Malay Peninsula and the islands of the East Indies are most poorly represented. We have next to nothing, for example, from New Guinea except a few old mounted specimens. The Wilson collection from the Malay Peninsula, together with birds obtained by Weber in Sumatra, by Raven in Celebes, by Porter and White in the Philippines, and by Andrews in Formosa, Borneo, etc., give us at least a few samples of the wonderfully rich bird life of these regions.

Of *Mammals* we have only 387 specimens from Europe, but close to 9,000 from Asia. A great belt of territory, which makes up the largest single expanse of land on earth and which extends from the Mediterranean northeastward to the Arctic Ocean, is as yet a blank to us. Practically all the Asiatic mammals are new acquisitions and in general they cover the southeastern Pacific face of the continent from India to Bering Strait. The great majority of our specimens has been received from the Asiatic expeditions, but sight should not be lost of the remarkably complete Indian collections obtained by the Faunthorpe-Vernay Expedition and by Mr. Douglas Burden, or of the Malaysian collections made by Mr. Andrews during his earlier work. As regards the Indian ungulates, beasts of prey, etc., it is not unlikely that Mr. Vernay and Colonel Faunthorpe have obtained many species just in time. Fifteen or twenty years hence might well be too late to duplicate this work.

In the Division of *Anthropology,* we have comprehensive (*i.e.* fully adequate) *Archæological* collections of material from the coasts of France, the Low Countries, Germany, Denmark and from the Swiss Lake region. Similar representative collections come from the eastern tip of Siberia and from a small area of eastern Manchuria. General or scattered collections in *Archæology* have had their origin in the British Isles, Scandinavia, Spain, Turkestan, South India, Central Siberia, Indo-China, China and Korea. In *Anatomical* material, our only comprehensive collection is from Hungary. This is supplemented by general collections from Scandinavia, Central Europe, the East Indies, etc. The modern *Ethnographic* material is best represented by the great Siberian collections from the region close to the Arctic Circle, and from parts of southeastern Asia including the Philippines.

AFRICA

Among the collectors who have enriched our African collections may be named Messrs. Akeley, Barnes, Broom, Brown, Chapin, Clark, Granger, Johnson, Lang, Osborn, Rainey, Rainsford, Roosevelt, Tjader.

The *Geological* material from Africa includes an extraordinarily large number of invertebrate fossils from Abyssinia, together with scattering collections of fossils, rocks and meteorites from northeast Africa, the Congo Forest Belt, and temperate

South Africa. Practically all of West Africa, including the Sahara, and of southeast Africa and Madagascar, are unrepresented.

In *Minerals* the continent is sparsely developed and therefore is represented by few specimens.

The African element in the collections of *Vertebrate Palæontology* comprises about 3 per cent. of the total. It consists chiefly of the collection of Eocene and Oligocene mammals from the Fayûm District in Egypt, and the Broom collection of Permian reptiles from South Africa.

We have more than 40,000 examples of *Lower Invertebrates* from Africa, but the greater part is from the Congo Forest region and was obtained during the long sojourn of Messrs. Lang and Chapin. There are 28,700 specimens in this, the largest single collection that has ever been accessioned by the department. Other important sources have been British East Africa, the Union of South Africa, French West Africa, the Island of Mauritius, and the Cape Verde archipelago. The same general facts apply to the Department of *Insects,* but in addition to the great collection of Congo forms, almost the entire shore line of the continent is covered to a certain extent, the principal voids lying in the Sahara and in the arid parts of south central Africa.

The fresh-water *Fishes* of Africa make up 9 per cent. of our total collection and 60 per cent. of the genera known from the continent. Fifty per cent. of the known genera of fishes in the Indian Ocean is also to be found in our study collection and may well be noted here.

The Department of *Herpetology* shows again the importance and far-reaching effect of the great Congo Expedition, because almost 100 per cent. of the known amphibians and reptiles from the Congo Forest is represented in the Museum. Other important collections of reptiles and amphibians come from South Africa, and from East Africa near the mouth of the Red Sea. Our remaining specimens are chiefly coastal and from scattered localities, although Madagascar has given us possibly one-tenth of its known herpetological fauna.

Our only full and adequate collections of African *Birds* are those obtained in the Belgian Congo during the memorable Lang-

Chapin Expedition. More than 75 per cent. of the species occurring in the Congo Forest is represented in the Museum collections, mostly in the form of excellent series. We also have many species from the Cameroon. North Africa has as yet yielded us scarcely any part of its avifauna, with the exception of a few skins from Egypt. We have nothing from the great desert area and only a little from upper Guinea and the region of the White Nile. A collection of East African birds obtained during the Tjader-Lang Expedition has been recently enhanced through the purchase of the Loveridge collection from Tanganyika Territory. Other small collections bear the labels of localities in Natal and Rhodesia, but we have practically no material from Cape Colony, Southwest Africa or Angola.

Madagascar is represented by species which cover the majority of the genera. The greater part of these are the result of recent purchases from Professor Lamberton.

The *Mammalian* collections are principally from Central Africa, the Congo, and the Lake Region, the country about the head-waters of the Nile, etc., having yielded the greater part of our 6,500 specimens. In amassing this material, the work of Lang, Chapin and Akeley comes first, although the contributions by the very large number of the Museum's friends have filled very important gaps. In general it may be said that we are woefully deficient in mammals from all of North and West Africa and from the greater part of South Africa. It should be added that only the larger so-called "game" mammals are adequately represented. The only exception pertains to the Congo Region and Tanganyika territory, in which Lang and others devoted as much attention to rodents, insectivores and other small groups as to the more spectacular forms. We have little material worth mentioning from the important Madagascan field.

In *Anthropology,* we have no comprehensive *Archæological* or *Anatomical* African material. Comprehensive *Ethnographical* collections have been brought to the Museum from the Central Forest Region, Central South Africa and the Gold Coast, while the rest of the continent south of 15° N., and including Madagascar, has yielded fairly good general collections. From north of the Sahara, we have nothing.

AUSTRALIA

Beginning our work in Australia are the following collectors and explorers: Messrs. Crampton, Gregory, Hovey, Hurley, Raven.

From Australia the Museum has 38 *Invertebrate Fossils,* 272 *Rock* specimens and 36 *Aërolite* specimens. Australian *Minerals* constitute 1½ per cent. of our total.

Vertebrate Palæontology has little Australian representation in the collections. Its contributions constitute not more than one per cent. at the most. The chief element in this division of the collection is casts of *Diprotodon* and other Pleistocene vertebrates, with a small amount of original material.

Invertebrate Zoology has slightly more than 2,000 specimens, from localities on the west and north coasts. The *Insects* are likewise all from coastal stations, including (as in the case of other invertebrates) Tasmania and New Zealand.

The Australian *Fishes* are mostly new to the Museum, but they make up 2 per cent. of our total collection and cover 60 per cent. of the known genera. The First Australian Expedition brought home 150 fresh-water fishes, including both lung fishes and *Periopthalmus.*

We owe the greater number of our specimens of *Amphibians* and *Reptiles* to the same expedition. These now number more than 500, which come mostly from southeastern Australia and Tasmania.

Our principal representation of Australian-New Zealand *Birds* has been obtained by exchange, although the recent work of Mr. Raven in eastern Australia and Tasmania has added materially to our series. We still lack a considerable number of Australian genera and have, in fact, practically nothing from the western half of the continent. Doctor Sanford has recently given special attention to the New Zealand avifauna, and through both exchange and purchase we have filled gaps among the water birds and have acquired many of the rarer terrestrial forms, including several now on the verge of extinction. Mr. J. Sanford Barnes has made an important addition to the Neozelanic collection by recently presenting a specimen of the extremely rare extinct ground parrot of Chatham Island.

The Australian *Mammals* number 1,337 specimens, of which more than 200 are skeletons. Eighty-five per cent. of all the gen-

era of Australian marsupials and monotremes are now in the Museum's collections, but it should be noted that we have no mammalian collections from the western eight-tenths of the Island Continent.

In *Anthropology,* a few general *Archæological* collections come from extreme southeastern Australia. Comprehensive *Anatomical* material, including a skeleton and 30 skulls of Australian aborigines, represents the central part of the continent, while New Zealand has supplied us far more adequately. Our only *Ethnographic* specimens come likewise from Central Australia and New Zealand.

OCEANIC ISLANDS

Our surveys and collections in Oceanic Islands include the names of Messrs. Andrews, Beck, Beebe, Bennett, Bickmore, Brown, Chapman, Comer, Correia, Crampton, Lucas, Lumholtz, Murphy, Townsend.

Oceanic Islands, as here used, include not only Polynesia but all the island areas excepting such large continental islands as those of the West and East Indies, New Zealand, and the small bodies of land lying close in shore on the continental shelves.

The Department of *Geology and Invertebrate Palæontology* has not only certain specimens dredged from various parts of the oceans but also a creditable series from many Atlantic islands, including the Azores, Bermuda and South Georgia. The Pacific islands and those of the Indian Ocean have yielded much less, although we have 7 invertebrate fossils, 55 rock specimens, and one meteorite from Hawaii, as well as a single meteorite from Mauritius.

All the oceans and nearly all the seas, with their subdivisions, have contributed to the collections of *Invertebrate Zoology.* The insular collections come from many areas between the Arctic lands and the South Shetland group on the threshold of the Antarctic. In Polynesia, practically every important insular group is represented, and many of the small isolated islands as well. The Whitney South Sea Expedition has done considerable to swell the recent growth of material from this part of the world. The Mascarene and other islands of the Indian Ocean have likewise yielded specimens, while the Atlantic representation includes material from Bermuda, the Azores, Madeira, the Canaries, the Cape Verdes, Ascencion, St. Helena, the Falklands, and South Georgia, besides

the South Shetland Islands already mentioned. Nine thousand eight hundred specimens bear Hawaiian labels, 1,500 Society Islands labels, and several thousand more are still to come to us from Professor Crampton's last expedition. Among other interesting Pacific localities to be noted are Juan Fernandez, Easter Island, and the Galapagos, the greater part of the material from the last group bearing the labels of Mr. Beebe's recent expedition.

Insular *Insects* are less well covered by the Museum's collections. We have, however, a scattering of specimens from many Polynesian localities and from the Falkland Islands, together with more representative series from Bermuda, the Galapagos and Hawaii.

Fishes are treated fully under the continental headings. It may be well to note here, however, that not less than one-half of the known genera are represented in our collection from any oceanic area. This is true even of the Antarctic region.

Island *Herpetology,* which includes only reptilian and chiefly lizard fauna, is poorly represented from the greater part of Oceanica, although the Harrison Williams Galapagos Expedition of the New York Zoological Society has given us a good representation from the Galapagos, and the Whitney South Sea Expedition particularly fine series from southern Polynesia and the Marquesas Islands. Our Hawaiian collection is also fairly adequate, although it includes rather less than 75 per cent. of the known fauna.

Island *Birds* are in general among the rarest in museum collections, but through the field work of the Whitney South Sea Expedition, the American Museum of Natural History has acquired the best representation of the little-known Polynesian avifauna which has ever been brought together. The expedition has been at work since September, 1920, and has thus far made collections at about ninety different islands. Through the coöperation of the Bishop Museum of Honolulu, the value of our Pacific insular material has been greatly increased by the acquisition of an almost complete representation of Hawaiian birds, including all but two or three forms of the curious and rare Drepanids.

Through earlier work, the Museum had already come into possession of splendid collections of birds from most of the maritime regions except the Indian Ocean area. Thus the work of Comer, Murphy and Correia had covered many of the north and south

Atlantic islands. Beck, Chapman and Murphy had obtained collections of birds along the greater part of the South American coast line, including Juan Fernandez, the Falkland Islands and South Georgia. More recently, Bennett has sent material from the South Shetland Islands. The Galapagos, the Aleutians, and other Pacific groups have been well covered by Beck, Beebe and other naturalists.

In *Marine Mammals* all the large species of whalebone whales —with the exception of the humpback and bowhead—are represented in the collections. There is no example of the latter species in any museum in the United States. The small *Neobalæna* of the Antarctic is still a desideratum.

The Museum also has examples of the sperm whale and *Kogia,* the last from several localities. Examples of the larger *Ziphiidæ,* such as *Ziphius* and *Berardius,* are desiderata, but *Mesoplodon* is represented by species including the type *bowdoini.* About one-third of the recognized species of smaller toothed whales, from the killer down, are represented, the Museum being particularly rich in northern species, from both the Atlantic and Pacific.* The Museum is poor in the southern species of dolphins and in the fresh-water forms, having specimens of only two of the latter.

All species of Pinnipeds found in the North Atlantic are represented, and also the tropical *Monachus;* from the North Pacific we lack only the walrus and the Laysan *Monachus.* The Mediterranean *Monachus* and the Caspian seal are also desiderata. The seals of the South Atlantic and South Pacific are almost entirely absent from the collections, which contain not a single eared seal, only skulls of *Mirounga,* and skeletons of Weddell's seal and the sea leopard.

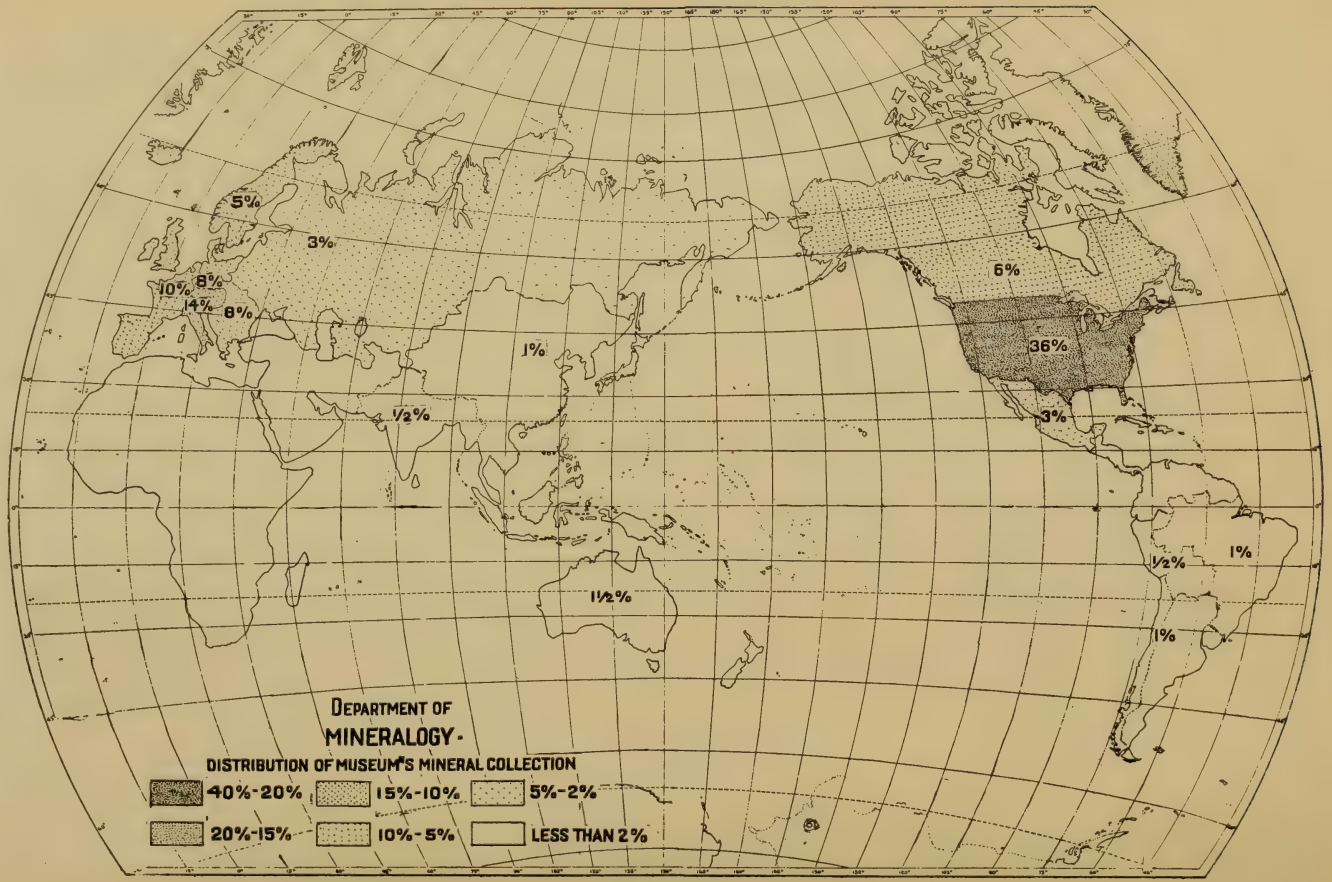
It should be added that more examples are needed of all the species noted, and this is particularly true of the Pinnipeds.

In *Anthropology,* our insular collections come almost exclusively from the Pacific archipelagoes. Polynesia, including Hawaii, and the Melanesian groups east of New Guinea, have supplied us with general *Anatomical* material, while the entire central Pacific region is reasonably well represented by *Ethnographic* specimens.

*Among them is the type of the singular True's dolphin.

MAP SHOWING THE
GEOGRAPHICAL DISTRIBUTION
OF THE SPECIMENS IN THE DEPARTMENT OF
GEOLOGY AND INVERTEBRATE PALÆONTOLOGY
AMERICAN MUSEUM OF NATURAL HISTORY
NEW YORK
AS OF DECEMBER 31, 1923
COMPILED BY CURATOR E.O.HOVEY
ASSOCIATE CURATOR C.A.REEDS
AND ASSISTANTS
F-FOSSILS
R-ROCKS
M-METEORITES
LEGEND
NO. SPECIMENS
1-25
26-100
101-500
501-1000
1001-2500
2501-5000
5001-10000
10001-25000
25001-405000
SUMMARY
FOSSILS 662042
ROCKS 17895
METEORITES 3229
TOTAL 683166
Prepared by C.A.Reeds and E.J.Foyles

MAP I


5%
3%
10%
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4%
8%
1%
1/2%
6%
36%
3%
1%
1/2%
1%
1½%
DEPARTMENT OF
MINERALOGY.
DISTRIBUTION OF MUSEUM'S MINERAL COLLECTION
40%-20%
15%-10%
5%-2%
20%-15%
10%-5%
LESS THAN 2%

MAP II

GEOGRAPHIC DISTRIBUTION OF COLLECTIONS

Rocks, Fossils and Meteorites

The collections of the Department of Geology and Invertebrate Palæontology comprise not fewer than 17,895 rocks, 662,042 fossils and 3,229 meteorites. The geographical distribution of these specimens, according to the major political divisions, is shown on the world chart, Map I. On this chart two methods of presentation have been employed: one, a graphic generalized series of line symbols for the larger land areas; the other, an alphabetical list of the names of the countries with their numerical representation entered opposite, arranged across the lower portion of the map.

The rocks include, among others, the James Hall collection from New York State; the New Hampshire and Vermont series assembled by Charles H. Hitchcock; the building stone collection of the Tenth Census, which is important for its representation of American localities; the Rosenbusch series of typical rocks; the Simplon Tunnel series; volcanic series from Martinique, St. Vincent, Hawaii and Vesuvius; cave material from Weyer's Cave, Virginia, Mammoth Cave, Kentucky, and Copper Queen Cave, Arizona; copper ores from Bisbee, Arizona; lead ores from Oklahoma, and zinc ores from Broken Hill, Australia. The Department's series, however, large though they are, form but a small proportion of the rocks and ores that should be represented in the Museum—important areas and subjects being here represented sparsely or not at all.

The invertebrate fossils in the Department of Geology and Invertebrate Palæontology, comprising 662,042 specimens, were assembled by various collectors in many parts of the world. The largest collections come from New York, Indiana and Oklahoma, while Pennsylvania, Ohio, Kentucky, Minnesota, Germany and Austria appear in the second group. The third group embraces Alabama, Arizona, Iowa and Porto Rico. In the fourth group may be noted South Carolina, Illinois, Wisconsin, California, Syria, France and Hungary. Five other groupings with fewer than 2,500 specimens are indicated on the map, while the portions of Canada, Greenland, Antarctica, South America, Africa, Europe and Asia which have no representation appear blank.

This large collection of invertebrate fossils is of value in that

it contains an unusually large representation of the diversified forms of marine life that have lived during the various periods in the geological history of the earth and which are genetically connected with the thousands of species living in the seas today. Many living forms may be seen in the collections of the Department of Lower Invertebrates of this Museum. This fossil assemblage is also noted for nearly ten thousand types, that is, the specimens which served as a basis for defining or illustrating the species known to science. The great James Hall collection of types and figured specimens forms the major portion of this part of the Department series. Although there are well over a half-million fossil specimens in this collection, there are large portions of the earth that are only sparsely represented and still others not represented at all.

The meteorite collection, containing representatives of 543 different "falls" and "finds," forms one of the half-dozen largest series of such objects in the world. The distribution of the geographical sources of the specimens is extremely irregular, because the distribution of the meteorites themselves is irregular. The chief portion of the collection in point of numbers, comprising about 400 "falls" and "finds," came to the Museum with the Bement Collection in 1902, presented by the late J. Pierpont Morgan, Esq. Besides this we have the Cape York (Greenland) meteorites, including the 36½-ton Ahnighito, presented by Mrs. Morris K. Jesup; Willamette (Oregon), weighing 15½ tons, the gift of Mrs. W. E. Dodge; some 2,000 bolides, which represent a considerable portion of the "stone shower" resulting from the explosion of a meteorite over Holbrook, Arizona; and several unique masses of meteoritic iron or stone. All but one of the forty States of the United States in which meteorites have been found are represented here by specimens. Although, or because, our meteorite collection is so large, we are always on the lookout for new specimens to add to it.

Minerals

As with all large mineral collections, that of The American Museum of Natural History includes mineral specimens gathered from all parts of the world. In order to arrive at an approximate estimate of the proportional distribution of the localities repre-

sented, two representative blocks of five cases each were selected and a detailed analysis of the geographical distribution of the 6,000 specimens contained in them was made, Map II. As a basis of this analysis, certain arbitrary groups of countries were assumed; for example, *Western Europe,* to include the British Isles, France and Belgium; *Central Europe,* to include Germany and Austria; *Southern Europe,* to include Italy, Switzerland and Tyrol; *Southeastern Europe,* to include Czechoslovakia, Hungary, Rumania and Greece; *Northern Europe,* to include Norway, Sweden and Iceland.

The estimated distribution of specimens is as follows:

Canada—Greenland	6%
United States	36%
Mexico	3%
Brazil—Uruguay	1%
Peru—Bolivia	½%
Chile	1%
Western Europe	10%
Central Europe	8%
Southern Europe	14%
Southeastern Europe	8%
Northern Europe	5%
Russia, including Siberia	3%
Japan—China	1%
India	½%
Australia	1½%
Scattering	1%

Fossil Vertebrates

On Map III are shown in solid circles the areas from which the more important collections of fossil mammals, birds, reptiles and batrachians have come. All continents and almost every important fossil field are represented in our collections. North America, the richest fossil field in the world, has yielded about 85 per cent. of our entire collection, and most of these specimens are from the Rocky Mountain region.

By far the greater part of our North American collection has been obtained by Department expeditions, which have been going to the West almost uninterruptedly since 1891, the year after the establishment of the Department. Our principal expeditions to foreign countries have been to Patagonia, Ecuador, Mexico, Porto Rico, Cuba and Jamaica in the western hemisphere, and India, Burma, China, Mongolia, Egypt and Greece in the Old World.

These expeditions, together with the purchase of some important collections, notably those of Cope, Warren, Sternberg and Broom, and a series of exchanges carried out with other museums, have resulted in the bringing together of a collection of fossil mammals and reptiles which is unexcelled.

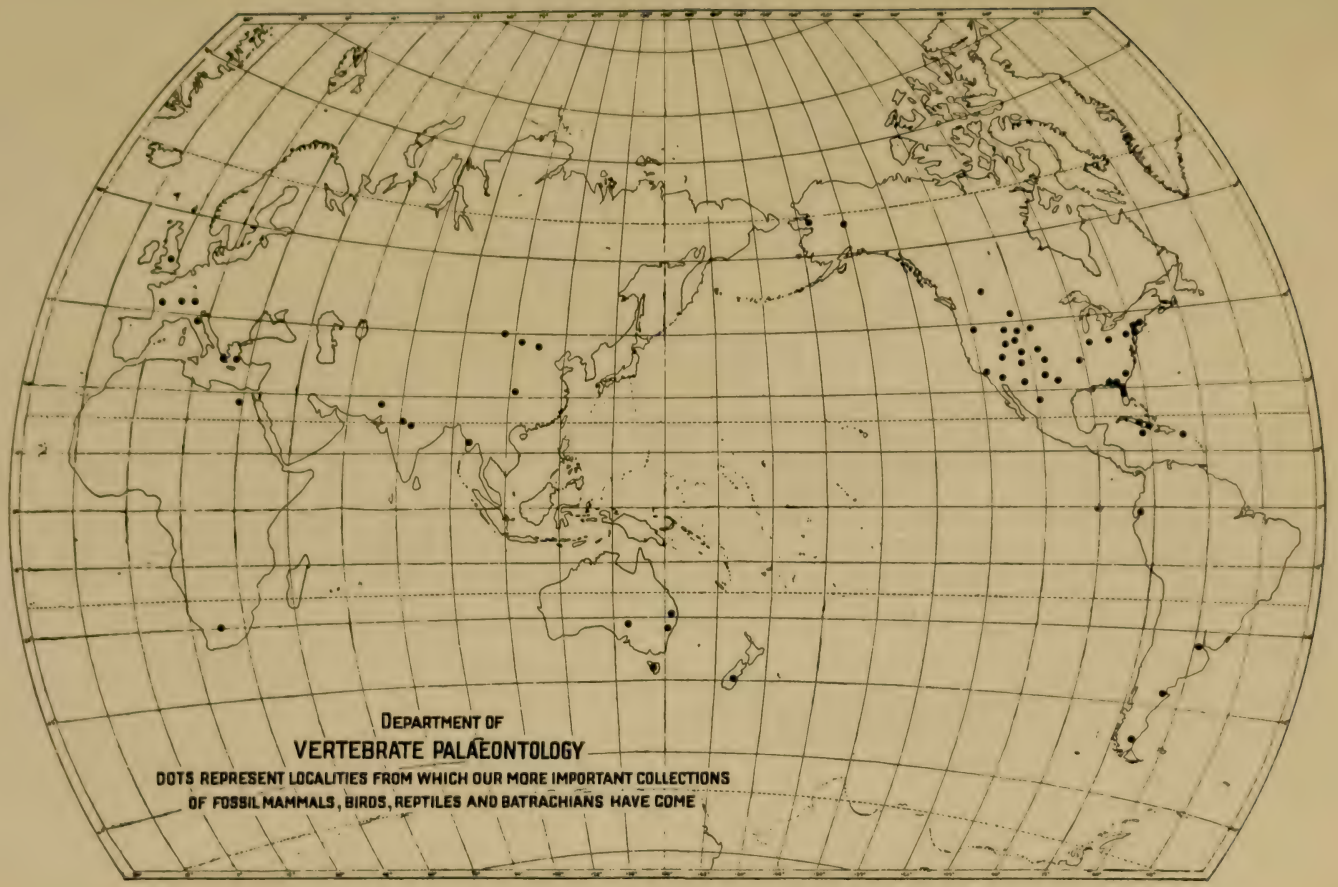
Estimated distribution of specimens:

North America	85%
South America (including West Indies)	4%
Eurasia	7%
Africa	3%
Australia	1%

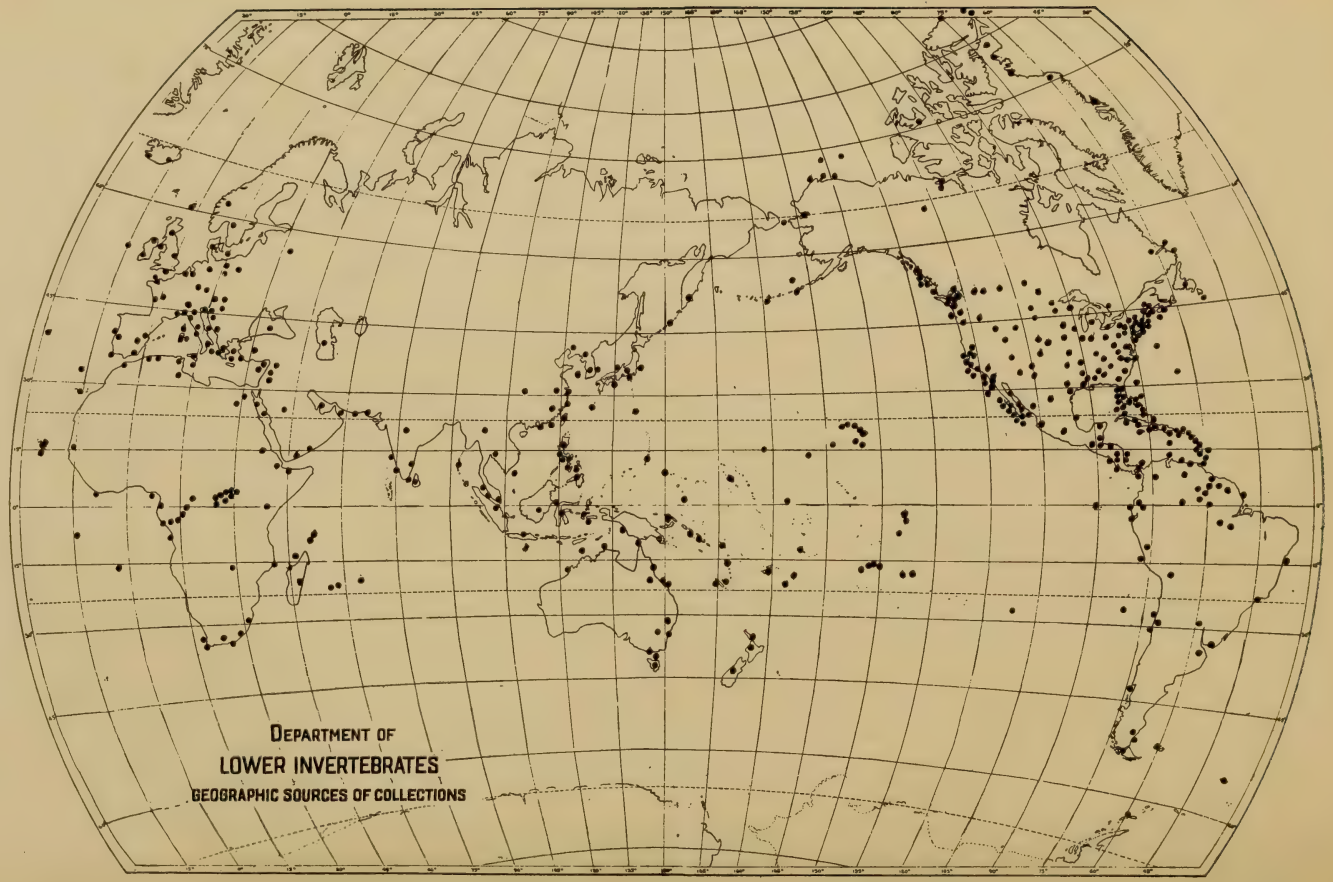
Lower Invertebrates

The chief areas not represented in the Lower Invertebrate collections are deserts and the great grassy plains, and certain regions as yet not sufficiently explored. This is apparent from Map IV.

All the Grand Divisions are well represented, including practically every country of the globe. All the oceans, and nearly all the seas, with their subdivisions, have contributed to the collections. As would be expected in the case of invertebrates, the greater number of localities are coastal or insular, though nearly every state in the United States has contributed its quota, and the inland countries of Europe are well represented. This latter fact is due to the fluviatile species in the collection, as well as to such land invertebrates as myriapods, land mollusks, isopods and worms. The heart of the Congo Region in Africa has contributed a very large series of such forms, and also the interior of northern South America. The temperate and tropical zones have naturally contributed the vast majority of specimens, though our records also include Arctic species from northern Alaska and Canada, Greenland, Iceland and Grant Land at 83° N., and southern forms from New Shetland at 62° S., nearly at the Antarctic Circle. In Oceanica, practically every important island group is represented and many of the small, isolated islands as well. Australia and New Zealand have contributed their quota, while the various islands of the Philippine Archipelago are very well emphasized, especially in the mollusk collections. The larger East Indian islands, the islands of the Indian Ocean, and all the small Atlantic


DEPARTMENT OF
VERTEBRATE PALAEONTOLOGY
DOTS REPRESENT LOCALITIES FROM WHICH OUR MORE IMPORTANT COLLECTIONS
OF FOSSIL MAMMALS, BIRDS, REPTILES AND BATRACHIANS HAVE COME

MAP III


DEPARTMENT OF
LOWER INVERTEBRATES
GEOGRAPHIC SOURCES OF COLLECTIONS

MAP IV

islands have given to our series, while practically every island of the West Indies, large and small, has received the concentrated attention of our expeditions.

Summarized in figures, the Lower Invertebrate collections comprise 233,034 identified and catalogued specimens, to which locality data can be assigned, besides several thousand without locality data, and many thousand in process of identification and therefore not yet catalogued. Of the above-mentioned number, 168,560 are mollusks, and 64,474 belong to other invertebrate phyla. This number is conservative, and a more exhaustive survey of the collections, which time does not permit, would add considerably to the number of species, specimens, and localities which can now be reported upon.

The following table summarizes the chief regions represented:

Geographic Region	*Number of Specimens*	
United States	46,784	
Canada	3,498	
Greenland	449	
Mexico	6,478	
Central America	1,176	
West Indies	49,170	
Total, North America	107,555	
South America	11,430	
Total, New World		118,985
Europe	14,235	
Asia	16,929	
Africa	41,267	
Oceanica, including Australia	41,618	
Total, Old World		114,049
Total in Collections		233,034

The largest series thus come from the West Indies, the United States, Africa and Oceanica. In the United States, California has contributed over 11,000 specimens, Florida 7,000, New York 4,000, and Massachusetts 3,000. The only States not represented are Montana and Nevada. The majority of the Canadian collections were made in New Brunswick, though practically all parts of southern Canada are represented, as well as the extreme Arctic coast. The Hudson Bay region and the country immediately to the west are not shown in the collections.

The Peary, Stefansson, and Crocker Land expeditions have brought a limited number of invertebrates from the Arctic Region.

The most important Mexican source has been the coast of Lower California, through the Albatross Expedition. In the West Indies, though nearly all the islands are represented, the most important sources thus far are: Porto Rico with 13,000 specimens, Dominica with 6,000, the Bahamas with 5,400, and Cuba with 4,500. In South America, the chief collections are from British Guiana and Patagonia, though all countries except Paraguay show in our collections.

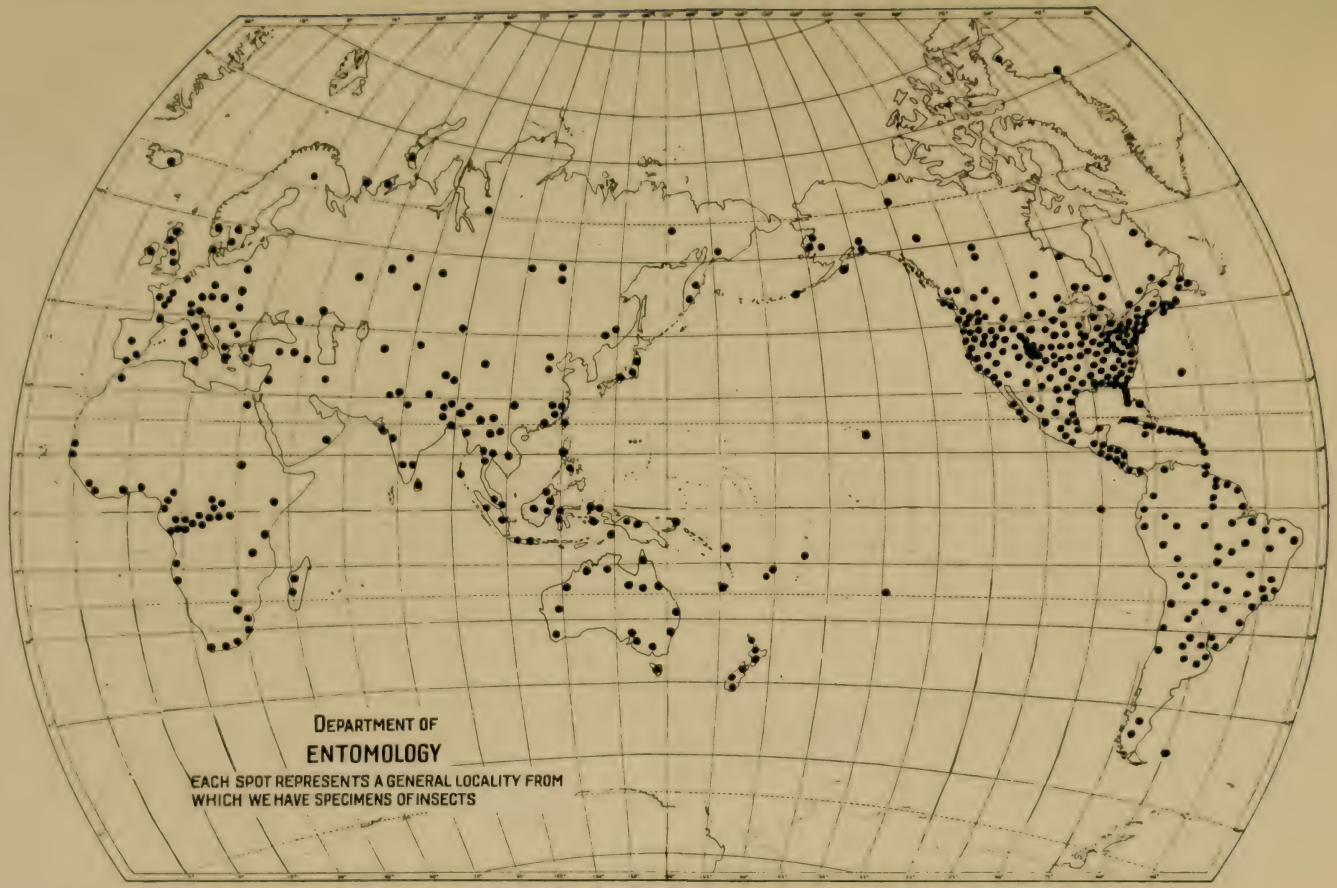
Our European series shows 5,000 specimens from the Mediterranean Sea, and 3,000 from England. Otherwise it is well distributed throughout the European countries with few exceptions. In Asia about 5,000 mollusks are from Ceylon, 4,000 from the Indian Ocean, 2,700 from China, and 2,000 from Turkey. The two latter items were largely contributed by the Third Asiatic Expedition and by Mr. Barnum Brown's collections. Over 1,000 specimens come from Japan. Practically all other Asiatic countries are represented, though the only Siberian locality as yet is Kamchatka, and no invertebrates have arrived from the Gobi region and other desert localities.

The largest African collection came from the Belgian Congo, as the result of the Lang-Chapin expedition, and comprised 28,700 specimens, the largest single collection that has been accessioned in the department. Other important sources have been British East Africa, Union of South Africa, French West Africa, and the Island of Mauritius. Other African countries and most of the islands off the coast of the continent are shown in the collections.

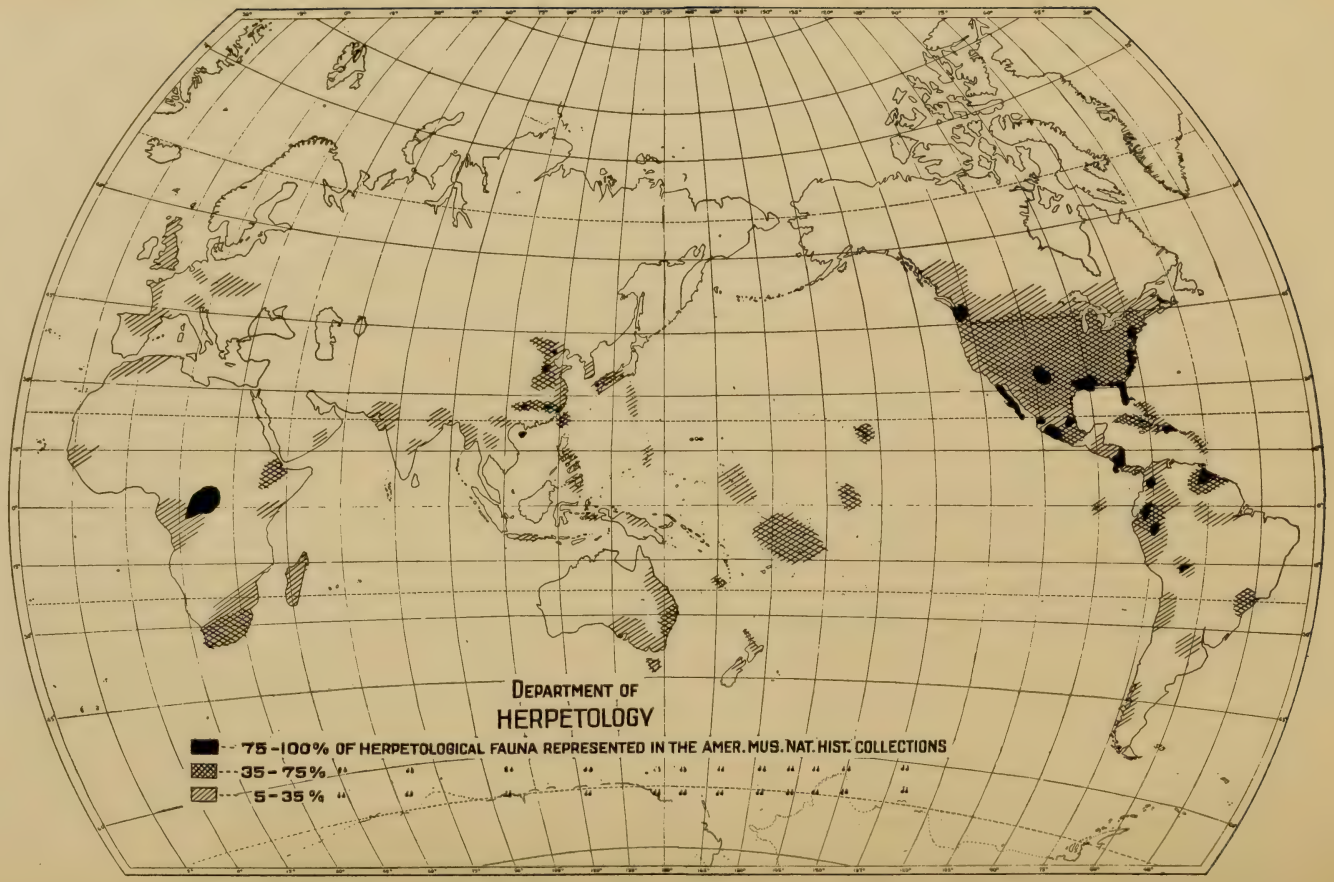
In Oceanica, the Philippines have furnished 12,700 specimens, Hawaii 9,800, New Zealand about 2,400, Australia 2,200, the Moluccas 2,000, the Society Islands about 1,500, though a large series is yet to come from Professor Crampton's trips; and the Loyalty Archipelago about 1,000. Most of the other island groups are represented by series ranging from a few specimens to collections of about 800.

Insects

The geographic distribution of our insect collections is shown in Map V, in which it is attempted to place a dot on the approxi-


DEPARTMENT OF
ENTOMOLOGY
EACH SPOT REPRESENTS A GENERAL LOCALITY FROM
WHICH WE HAVE SPECIMENS OF INSECTS

MAP V


DEPARTMENT OF
HERPETOLOGY
75-100% OF HERPETOLOGICAL FAUNA REPRESENTED IN THE AMER. MUS. NAT. HIST. COLLECTIONS
35-75% " " " " " " " " " " " " "
5-35% " " " " " " " " " " " " "

MAP VI

mate location from which the Museum has specimens. Sometimes one dot covers a number of such localities; more often it covers too much country. In general, Map V shows that our insect collections have been assembled not only by such collectors as Beutenmuller, Lutz, Watson, and Wheeler, but by a host of other collectors, each contributing to the grand total.

Fishes

Our Department of Ichthyology is comparatively young, since it was not until 1903 that Professor Bashford Dean, of Columbia University, was put in charge; consequently our summary of collections does not compare very favorably with collections that have been made in other institutions, such as the United States National Museum, and the Museum of Comparative Zoology at Harvard, which have enjoyed the support of the great ichthyologists of America for more than half a century. The approximate geographic distribution may be summarized in the following figures:

Marine Fishes

Percentage of Total Collection		*Percentage of Total Living Genera*
25 per cent	Atlantic	70 per cent
25 " "	Pacific	60 " "
4 " "	Indian Ocean	50 " "
4 " "	Mediterranean	50 " "
1 " "	Arctic	60 " "
1 " "	Southern Ocean	50 " "

Fresh-water Fishes

9 per cent	North America	80 per cent
9 " "	South America	60 " "
9 " "	Africa	60 " "
6 " "	Asia	50 " "
3 " "	Central America	70 " "
2 " "	Europe	70 " "
2 " "	Australia	60 " "
	World genera	60 " "
100 "		

In the summary of the collection as a whole, we find the following:

Total species represented in the collection	3,000
Total specimens represented in the collection	30,000

The construction of the Hall of Fishes, which will communicate with the gallery of the Hall of Ocean Life, will give a splendid opportunity for the display of our exhibition collection.

Reptiles and Amphibians

In fourteen years our collections have increased nearly 1,000 per cent. The collections now number more than 57,000 adult specimens, in addition to the several thousand eggs and larvæ which are catalogued by lots. In Map VI we show by stippling the distribution of these collections.

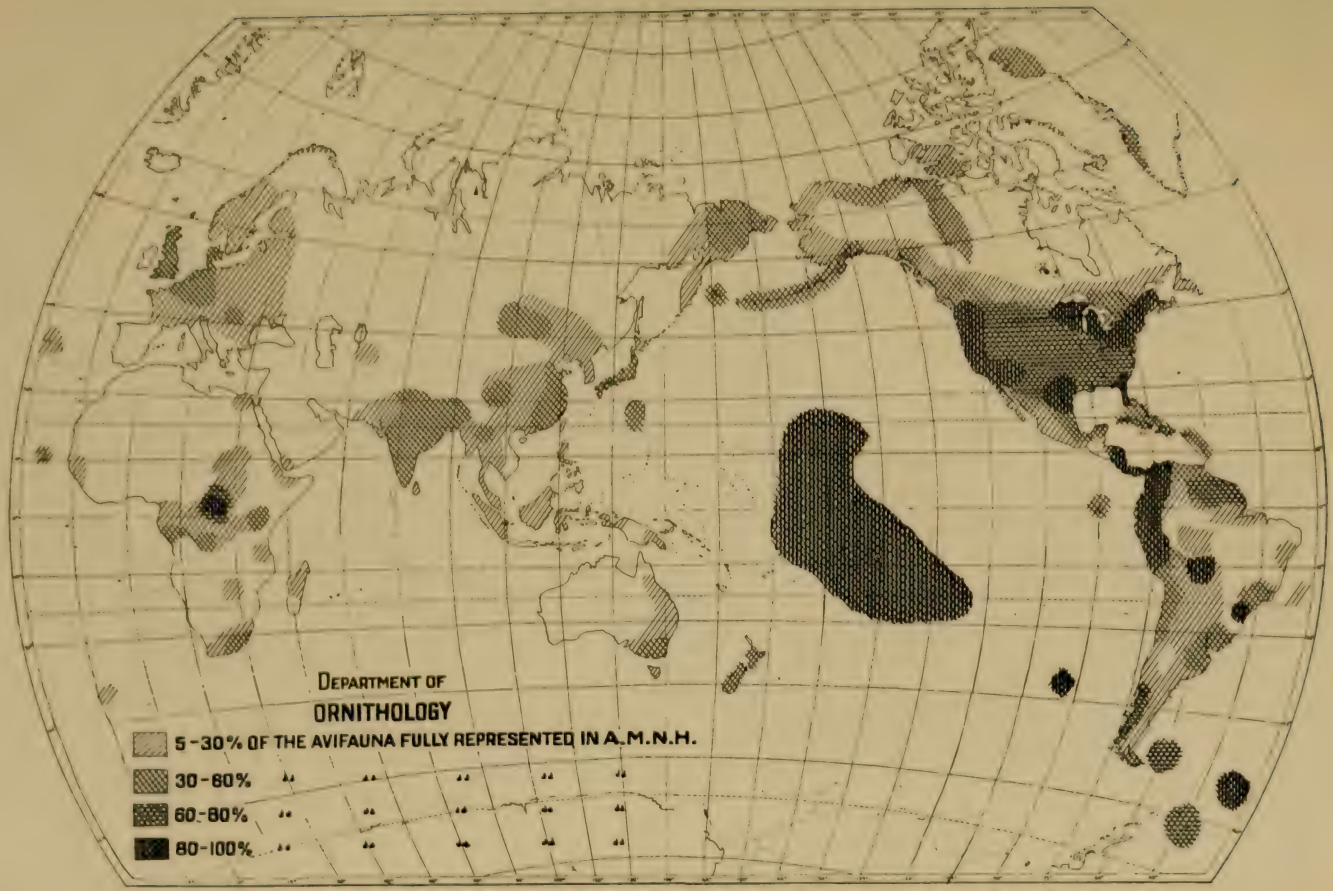
It will be observed that our greatest desiderata are to be found in the Oriental and East Indian region. Our study collection may be ranked among the five largest in the United States. It is a very representative collection, as the following table indicates:

	Number of Valid Genera in British Museum Catalogues	*Number of Genera in Collections of American Museum*
Cæcilians	11	11
Urodeles	26	22
Salientia	107	85
Rhynchocephalians and Chelonians	49	30
Crocodilians	6	5
Lizards	259	165
Snakes	296	167

There are many more genera in the collections than are shown in the above table. These other genera have been described since the British Museum catalogues were issued. When one realizes that there were practically no study collections of reptiles and amphibians in the American Museum prior to 1900, and only 6,000 up to the year 1909, one begins to appreciate the great wealth of material which has recently outgrown our storerooms.

Birds

The distribution of the Museum's bird collections is illustrated on Map VII only in the broadest way. The object has been to show the territory rather than the species of birds covered by the collections. For example, we have practically all known North American species of birds, but instead of covering the continent in darkest shading, it has been found best to give an approximate idea of the source of the respective material. This not only shows


DEPARTMENT OF
ORNITHOLOGY
5-30% OF THE AVIFAUNA FULLY REPRESENTED IN A.M.N.H.
30-60% " " " " "
60-80% " " " " "
80-100% " " " " "

MAP VII

8426
17%
387
1%
22330
44%
6270
12%
11650
23%
1337
3%
DEPARTMENT OF
MAMMALOGY
APPROXIMATE GEOGRAPHICAL LOCATION OF AMERICAN MUSEUM MAMMAL COLLECTIONS

Map VIII

the parts of the continent which our collectors have most fully covered, but also the areas in which the least work has been done.

It will be observed that parts of the earth from which collections of birds are most urgently needed include the entire northern portion of Eurasia, together with Spain, the Mediterranean Basin, southwestern Asia, the Oriental region, western Australia, Africa outside the Forest Belt, Brazil, the islands of the Indian Ocean and a few of those in the South Atlantic. The ocean areas have not been cross-hatched, but mention should be made of the fact that the Museum now possesses a collection of marine birds which is probably the finest in existence.

Mammals

The collections in the Department of Mammals are summarized on Map VIII, with the data presented to show the regions whence the specimens have come. The percentages which appear on the map are intended to express the percentage of the total mammal collection which is found in the particular geographical area under consideration. Because there are many large areas of the earth's surface where the mammal life is not sufficiently well known to be set forth in an accurate list of species, it is practically impossible to give the percentage of known forms which are in the Museum collections. For example, the department collections comprise a very high percentage of all of the known North American species; on the other hand, in less well-worked areas, such as Asia and South America, the Museum possesses only a small proportion of the species which should occur on these continents, but until the regions are fully worked no one can say what part of the fauna is represented by existing collections.

Nearly half of the department collection comes from North America, with the sources covering the United States in the manner set forth and with a very strong representation from the Arctic regions due to the expeditions of Peary, Stefansson, Anderson, Comer, and the Crocker Land Expedition. The principal sources of the North American collection, exclusive of the Arctic regions, are: Prince Maximilian of Wied collection, and specimens collected by Anderson, Anthony, Batty, Chapman, Granger, Mearns, Richardson and Stone.

In South America the collections represent 23 per cent. of the

department total and come principally from Colombia, Ecuador, Peru, British Guiana, Brazil, Venezuela, and the Argentine. Most of the mammals were collected by Anthony, Batty, Beebe, Carriker, Keays, Klages, Miller, Richardson, Smith, and Tate. The mammals taken on Colonel Roosevelt's South American Expedition are included in this figure.

Europe is represented by comparatively few specimens—only one per cent. of the total collection in the department.

Asia is represented by 17 per cent. of the total collection, and a large part of this material has been brought in by the series of Asiatic expeditions under Andrews and by the Faunthorpe-Vernay Indian Expedition.

Africa claims 12 per cent. of the total, with the greater part of this percentage made up from the mammals taken on the Lang-Chapin Congo Expedition, the Akeley expeditions and a number of important sportsmen's expeditions made by Rainey, Rainsford, and Tjäder.

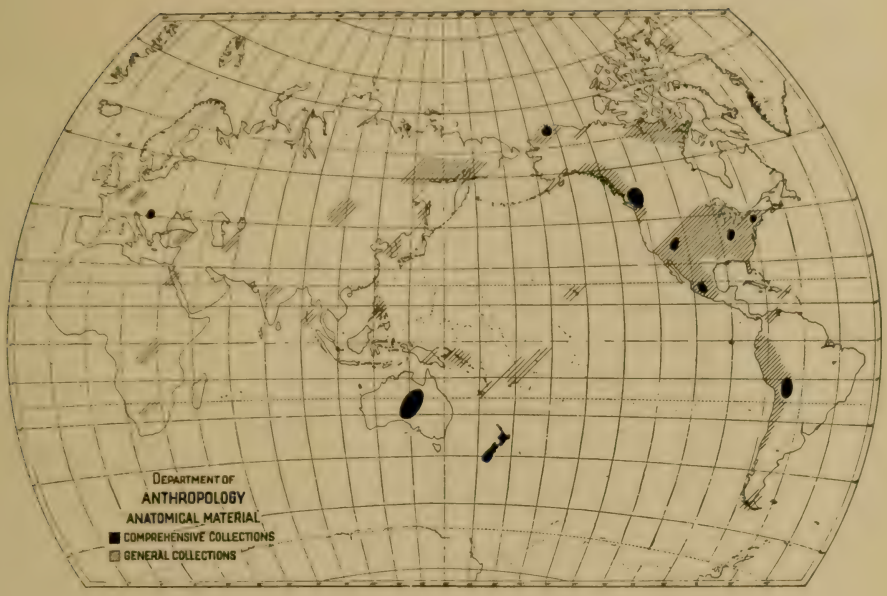
The mammals from Australia represent 3 per cent. of the total collection and were practically all secured on the expedition conducted by Gregory and Raven.

It will be seen that the collections from the Western Hemisphere are twice as large as those from the Eastern Hemisphere; that is to say, 67 per cent. (33,980) of the Museum mammal collection is New World in origin; 33 per cent. (16,420) is from the Old World.

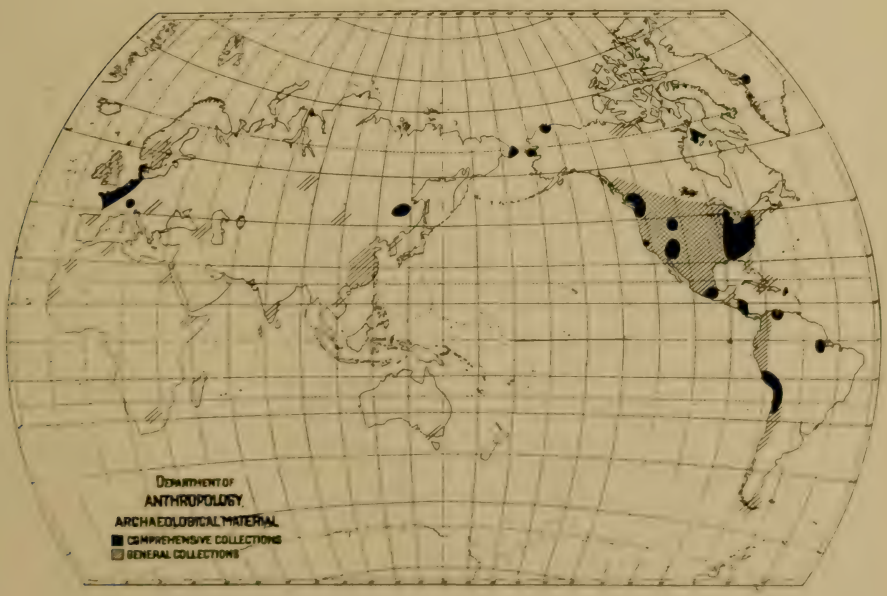
The map will illustrate two facts: first, that the expeditions sent out by the Museum have been world-wide in their scope; and, second, that there are still great areas unrepresented in the collection of mammals. Owing to the difficulties encountered in making complete and representative collections of mammals, many of these areas will be vacant on the department map for a long time to come, but there are many areas now white which in a short space of time can be marked in as the progress of Museum expeditions fills in the gaps.

Anthropological Collections

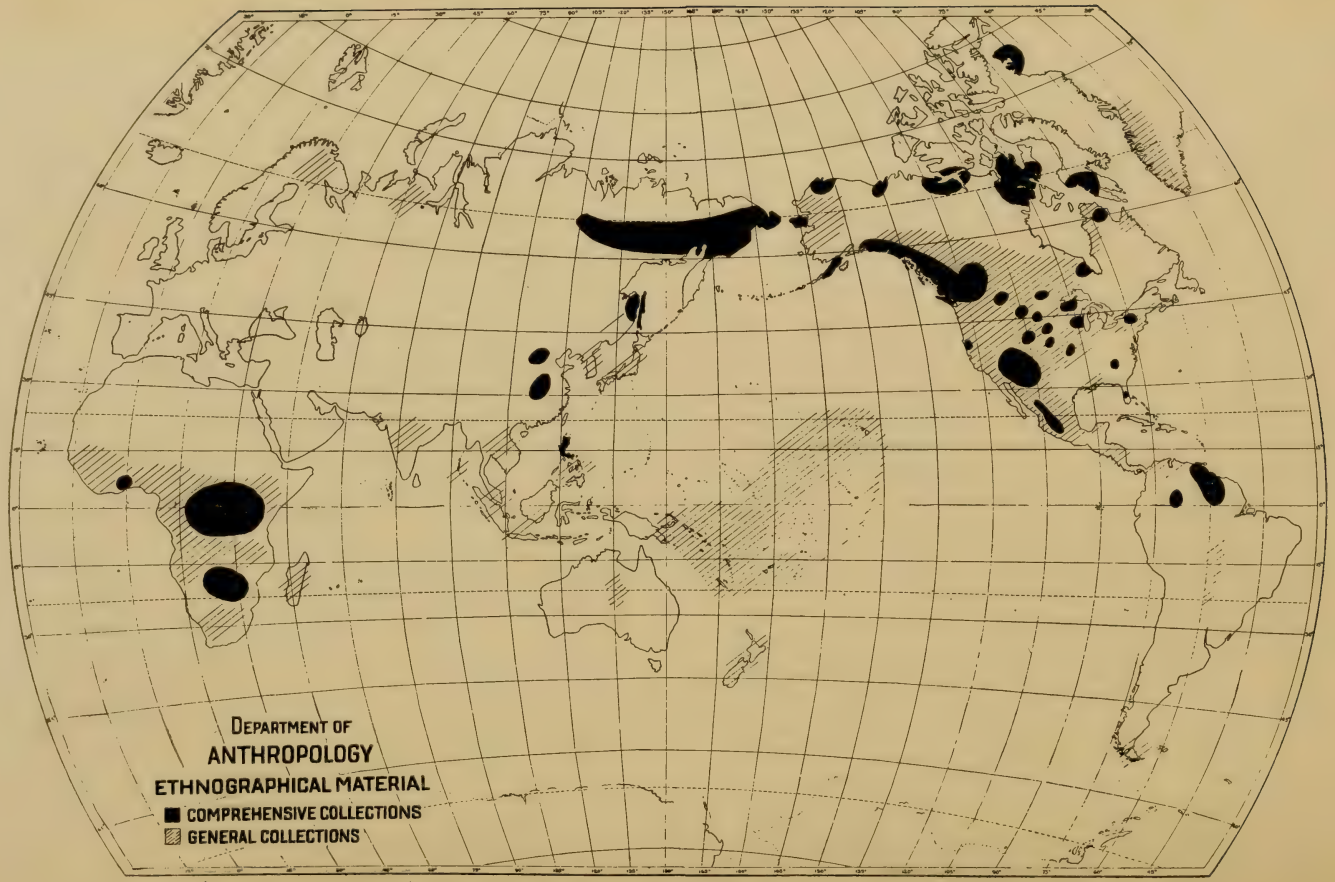
The collections as a whole fall naturally under the three traditional divisions of the science of man: anatomy, archæology, and ethnography. See Maps IX, X and XI. In the main, the ethno-


DEPARTMENT OF
ANTHROPOLOGY
ANATOMICAL MATERIAL
COMPREHENSIVE COLLECTIONS
GENERAL COLLECTIONS

MAP IX


DEPARTMENT OF
ANTHROPOLOGY
ARCHAEOLOGICAL MATERIAL
COMPREHENSIVE COLLECTIONS
GENERAL COLLECTIONS

MAP X


DEPARTMENT OF
ANTHROPOLOGY
ETHNOGRAPHICAL MATERIAL
COMPREHENSIVE COLLECTIONS
GENERAL COLLECTIONS

MAP XI

graphic and archæological collections were gathered by museum field parties, and to a large extent this is true of the materials for racial anatomy. Further, all the collections of the Division are handled in two rather distinct series, one for exhibition and one for reference or study. The latter is not mere dead storage material but is so arranged in classified assemblage as to be readily accessible at all times. Yet, at the same time it is well protected from insects, dust, and other destructive agents. For obvious reasons, the exhibition space is in the main given to ethnographical and archæological collections, which are installed in geographical units. The approximate number of specimens on exhibition and their geographical segregation are as follows:

North America:	
Ethnography of the North Pacific Coast	1,900
Of the Eastern Woodlands	8,477
Of the Western Plains	2,347
Of California and the Southwest	3,687
Of the Eskimo	3,000
Archæology of Mexico and Central America	8,411
Of the United States and Canada	25,000
South American Archæology and Ethnography	15,144
African Ethnography	4,658
Asiatic Ethnography	7,948
Malay and Philippine Ethnography	2,513
Islands of the Pacific Ocean	3,270
European Archæology	4,000
Racial Anatomy	300

This tabulation shows a fair balance between archæological and ethnographical material, but it is also true that the amount of material in storage far exceeds that on exhibition. It is also noticeable that relatively little exhibition space is given to anatomical materials, but in the ethnographic halls are to be found habitat groups in which there are life-sized figures of the several racial types. Finally, the following general summary gives a perspective of our total collections:

	Exhibition	*Study Series*
Ethnography	37,800	284,658
Archæology	52,555	875,063
Anatomy	300	27,000

SUMMARY OF THE MUSEUM COLLECTIONS TO THE END OF 1923

The summary of our collections from various parts of the world at the present time is approximately as follows:

Meteorites		3,229
Minerals and Gems		18,000
Geologic Specimens		17,895
Invertebrate Fossils, Palaeontology		662,042
Vertebrate Fossils, Palaeontology		30,000
Invertebrates		233,034
Insects	(about)	1,000,000
Fishes		30,000
Amphibians and Reptiles		57,500
Birds of the World		250,000
Mammals of the World		50,400
Anthropological Collections		1,250,000

NEARLY EIGHTEEN MILLION DOLLARS ADDED TO THE MUSEUM DURING THE PAST SIXTEEN YEARS

The gifts and appropriations to the Museum during the past sixteen years total nearly $18,000,000. In order to show how expenditures have kept pace with the increasing public service by the Museum and with the increasing cost of operation, attention is called to the following figures:

From the City of New York in Building and Equipment (including the School Service Building to be erected at a cost of $733,800), $3,045,725.54.

Contributions of members of the Board of Trustees, under Special Funds and Gifts, $2,895,241.82.

Gifts of Members and friends other than Trustees, $8,260,476.23.

Appropriations by the City for Maintenance and Operation of the Building and for Educational Work, $3,710,485.94.

Thus, during the past sixteen years, the grand total of additions to Permanent Equipment, to Building, to Exhibition, to Science and Education, Maintenance and to the Endowment of the Museum is $17,911,929.53, an average of more than $1,000,000 a year.

GENERAL ENDOWMENT FUND

The Present Total Endowment of $11,591,617.22 includes a number of generous recent contributions, as follows: Mr. George F. Baker, $250,000; Mr. Edward S. Harkness, $100,000; Mr. John D. Rockefeller, Jr., $1,025,000; Mr. J. P. Morgan, $127,187.50; Mr. George D. Pratt, $50,000; Mr. Arthur Curtiss James, $26,750; Mr. Felix M. Warburg, $19,000. This Endowment is still inadequate to the amount of $3,000,000 to meet the regular educational, exhibitional and operating expenses of the Museum, which have increased 250 per cent. during the sixteen-year period, chiefly owing to doubling and trebling of living costs, wages and salaries in the City of New York, which is now probably the most expensive city in the world.

It is estimated that an endowment of $15,000,000 or an addition of $3,408,382.78 will be needed to operate the Museum and

complete its educational exhibition system when the three new buildings—the *Asiatic Hall,* the *Oceanic Hall,* and the *School Service Building,* now under construction by the City at a total cost of $2,233,800, are completed in 1925.

Highly as the President and Trustees value the popular and financial appreciation of the Museum, they realize that the Museum is very far from being completed at present; that very extensive rearrangement of the collections must be made to bring about an ideal educational arrangement; that we must look forward in 1930, when the main Natural History Museum buildings as at present planned are complete, to a Permanent Endowment Fund of not less than $20,000,000, and so equivalent to that of the present endowment of the New York Public Library, in order to care for future increases in public and popular attendance and in the serious educational and scientific work in the schools, colleges and universities of this country.

MAINTENANCE AND OPERATING EXPENSES OF 1923

For the year 1923, the City Administration, appreciating the service that the Museum is rendering to the public, and especially its relations to the public school system, provided an appropriation of $342,313.36, which has been applied to the care and up-keep of the building and the maintenance of its educational activities. In the same liberal spirit, the City also appropriated $184,950 for necessary repairs, construction and equipment in the existing building, as well as an additional appropriation of $163,800 for the erection of the *School Service Building* now ready for construction. The growth of the institution has been so rapid that, generous as is the appropriation from the City for maintenance, it has been inadequate to meet the increasing cost of operation and school work, and the Trustees have applied $218,303.41 of Trustee funds to these maintenance and education expenses. In order not to curtail important work, the Trustees, at the beginning of the year 1923, guaranteed to raise $40,000 by personal subscription and actually contributed $38,000 for maintenance and operation, which, with various economies effected during the year, enabled the Treasurer to close his books without a deficiency.

The cost of operating the Museum in all its activities, including maintenance, education, exploration, publication, preparation and other scientific work, amounted to $1,085,462.25, the funds for which were derived from the following sources:

GENERAL OPERATING EXPENSES

City Appropriation for Maintenance.....	$342,313.36
Trustees' General Funds: (Applied to Maintenance and to Scientific Work)	325,154.54
Morris K. Jesup Fund: (Restricted to Scientific Work).....	288,906.93
Special Funds: (Contributions for Specific Purposes).....	105,803.60
Trustees' Building Fund.....	1,335.82
Corporate Stock Fund: (Appropriated by the City for Equipment).....	21,948.00
Total Expenditures of the Museum for 1923.....	$1,085,462.25

PROGRESS IN BUILDING AND EQUIPMENT OF SECTIONS 9, 10 AND 11

The most important feature in the building program has been the progress in the erection of the *Southeast Wing* and *Hall of Ocean Life*. It has been a source of keen satisfaction to watch these two halls take final form. These buildings were provided for by an appropriation of $1,500,000, unanimously voted by the Board of Estimate and Apportionment on December 28, 1921. The general contract for the construction was awarded to James Stewart and Company on September 8, 1922, and actual work began officially on October 4, 1922. The excavation, which involved some unexpected problems in establishing the foundations for the building, was completed in December of the same year. During the present year (1923), in spite of inclement weather, strikes and delays in the delivery of material, construction has progressed satisfactorily. In the early fall, both buildings were entirely enclosed and the interior finish well begun. It now seems probable that both buildings will be completed by the middle of 1924.

TABLE I. KEY TO ARRANGEMENT OF EXHIBITION HALLS BY BUILDING SECTIONS

Names of Building Sections	*First Floor*	*Second Floor*	*Third Floor*	*Fourth Floor*
1. MEMORIAL	Jesup Memorial	World Bird Groups	Primates	Age of Man (History of the Earth V)
2. SOUTH AMERICAN*	Indians of Eastern North America	African Life	Siberia	Minerals and Gems (Morgan Hall)
3. POLYNESIAN	Indians of the Plains	Prehistory of South America	China and Japan	Races of Man
4. EUROPEAN	Indians of the Southwest	Ancient Peru	Peoples of Malaysia	Evolution of Human Culture
5. CENTRAL AMERICAN*	Aztec and Maya	Central American Culture	Pacific Island Peoples	History of Inventions
6. AUSTRALIAN	California and Plateau Indians	South American Tribes	Life of Australia	Study Hall (Crafts and Textiles)
7. ASTRONOMIC*	Meteorite Hall	Cosmic Geography	Gallery	The Firmament
8. BICKMORE	Northwest Coast Indians	Birds of the World (Elliot Hall)	North American Bird Groups	History of the Earth I
9. EDUCATION	Nature and Man			
10. NORTH AMERICAN	Trees of North America	North American Mammals (Allen Hall)	Mammals of the World (Buffon Hall)	Age of Mammals (Osborn Hall)
11. ARCTIC AND ANTARCTIC	Darwin Hall of Evolution	Polar Life	Insect Life	Closing Age of Dinosaurs (History of the Earth IV)
12. ASIATIC	Fishes of the World	Mammals of Asia	Reptiles of the World	Early Age of Reptiles (History of the Earth III)
13. OCEANIC	Mollusks			
14. ROOSEVELT*	Association Headquarters	Roosevelt Memorial	Roosevelt Memorial	Gallery
15. AFRICAN	Geography of Africa	Mammals of Africa	African Natural History	History of the Earth II
16. NEW LECTURE AMPHITHEATER*				

*THE SIXTEEN BUILDING SECTIONS, as shown in the map entitled "General Building Plan of The American Museum of Natural History, 1923," printed in the Fifty-fourth Annual Report.

There will be sixteen building sections in The American Museum of Natural History, of which eleven have been completed or are under construction, and five are being planned for future construction. These five are indicated by asterisks in Table I.

TABLE II—EXHIBITION HALLS (*Continued*)

Names of Exhibition Halls	*Names of Building Sections*	*Floor*
JESUP MEMORIAL	Memorial	I
WEST ASSEMBLY	West Corridor	I
INDIANS OF EASTERN NORTH AMERICA	South American	I
INDIANS OF THE PLAINS	Polynesian	I
INDIANS OF THE SOUTHWEST	European	I
AZTEC AND MAYA	Central American	I
CALIFORNIA AND PLATEAU INDIANS	Australian	I
NORTHWEST COAST INDIANS	Bickmore	I
NATURE AND MAN	Education	I
METEORITES	Astronomic	I
EAST ASSEMBLY	East Corridor	I
TREES OF NORTH AMERICA	North American	I
DARWIN HALL OF EVOLUTION	Arctic and Antarctic	I
FISHES OF THE WORLD	Asiatic	I
MOLLUSKS	Oceanic	I
OCEAN LIFE	Oceanic (Ground floor)	
ROOSEVELT MEMORIAL OFFICES	Roosevelt	I
GEOGRAPHY OF AFRICA	African	I
WORLD BIRD GROUPS	Memorial	II
BIRDS OF NEW YORK	West Corridor	II
BIRDS OF THE WORLD (Elliot Hall)	Bickmore	II
COSMIC GEOGRAPHY	Astronomic	II
AFRICAN LIFE (Human)	South American	II
PREHISTORY OF SOUTH AMERICA	Polynesian	II
ANCIENT PERU	European	II
CENTRAL AMERICAN CULTURE	Central American	II
SOUTH AMERICAN TRIBES	Australian	II
TRUSTEES' ROOM	East Corridor	II
NORTH AMERICAN MAMMALS (Allen Hall)	North American	II
POLAR LIFE	Arctic and Antarctic	II
MAMMALS OF ASIA	Asiatic	II
ROOSEVELT MEMORIAL	Roosevelt	II
MAMMALS OF AFRICA	African	II
PRIMATES	Memorial	III
DOMESTIC ANIMALS	West Corridor	III
NORTH AMERICAN BIRD GROUPS	Bickmore	III
SIBERIA (Ethnographic)	South American	III
CHINA AND JAPAN	Polynesian	III
PEOPLES OF MALAYSIA	European	III
PACIFIC ISLAND PEOPLES	Central American	III
LIFE OF AUSTRALIA	Australian	III
COSMIC GEOGRAPHY (Gallery)	Astronomic	III
MEMBERS' ROOM	East Corridor	III
MAMMALS OF THE WORLD (Buffon Hall)	North American	III
INSECT LIFE	Arctic and Antarctic	III
REPTILES OF THE WORLD	Asiatic	III
ROOSEVELT MEMORIAL	Roosevelt	III
AFRICAN NATURAL HISTORY	African	III
AGE OF MAN (History of the Earth V)	Memorial	IV
THE HORSE	West Corridor	IV
MINERALS AND GEMS (Morgan Hall)	South American	IV
RACES OF MAN	Polynesian	IV
EVOLUTION OF HUMAN CULTURE	European	IV
HISTORY OF INVENTIONS	Central American	IV
STUDY HALL (Crafts and Textiles)	Australian	IV
THE FIRMAMENT	Astronomic	IV
HISTORY OF THE EARTH I	Bickmore	IV
AGE OF MAMMALS (Osborn Hall)	North American	IV
AGE OF DINOSAURS (History of the Earth IV)	Arctic and Antarctic	IV
EARLY AGE OF REPTILES (History of the Earth III)	Asiatic	IV
HISTORY OF THE EARTH II	African	IV
KEY TO PALÆONTOLOGY	East Corridor	IV

In each section, the exhibition floors are indicated by Roman numerals I-IV. The total number of exhibition, assembly and lecture halls is sixty-two, as shown in Table II.

The construction of these two sections will add six new exhibition halls to the Museum, which are being constructed after plans gradually maturing since the year 1911, when the present arrangement was decided upon, and which promise to be at once the most beautiful and the most impressive exhibition halls in the world. They embody the latest ideas and ideals of Museum construction and are receiving the scientific supervision of leading experts like Honorary Director Frederic A. Lucas; Assistant Director James L. Clark, in charge of Preparation; the noted animal sculptor, Carl E. Akeley; the ichthyologist, Bashford Dean (also on the Metropolitan Museum Staff); Roy C. Andrews, explorer and mammalogist; Roy W. Miner, specialist in invertebrate zoology; the herpetologist, G. Kingsley Noble; and the palæontologists, Henry Fairfield Osborn and William Diller Matthew.

In the *Hall of Ocean Life* will be displayed the whales, porpoises, seals, sea elephants, and other great sea animals, which, through the generous contributions of the late George S. Bowdoin and of Mr. Arthur Curtiss James, have been brought together by years of field work at the whaling stations in British Columbia, Alaska, Japan and Korea, and by expeditions to the Pacific Coast. In the center of the hall will be suspended a life-size model of the humpback whale in the act of diving. This animal is 50 ft. long and has a flipper spread of 40 ft. At the west end of the hall will be an accurate reproduction of a West Indian Coral Reef. This Habitat Group will be 30 ft wide, 12 ft. deep and 25 ft. high, and will be so arranged that the visitor descending from the gallery of the hall to its main floor will pass beneath the surface of the ocean and have an opportunity to view the corals and other marine life at close range.

The *Southeast Wing* will contain on the first floor our collection of fishes, which for several years has been incongruously housed amid our collection of birds of the world. The second floor will be the *Asiatic Hall,* which will be devoted to the splendid new Asiatic collections presented through Colonel J. C. Faunthorpe and Mr. Arthur S. Vernay, as well as the rich collections of the Third Asiatic Expedition, which will include the antelope, wild ass and other animals of the Mongolian Plains. The *Hall of Amphibians and Reptiles* will occupy the third floor, while in the

fourth floor hall will be installed the giant aquatic dinosaurs and other ancient fossil reptiles.

The next building project is the *School Service Building,* for which the Board of Estimate and Apportionment appropriated $570,000 on April 21, 1922. Since that time the plans for this building have received most careful study by the architects and staff members, until now we believe we have planned the best designed building possible for extending the usefulness of the Museum to the entire school system. The increasing cost of all building operations, due to labor conditions and higher prices for materials, combined with the somewhat specialized character of this building, made it necessary to apply to the Board of Estimate and Apportionment for an additional appropriation of $163,800 for the erection of this building. This supplementary appropriation was voted by the Board on June 29, 1923, thus making the total amount available for the *School Service Building* $733,800. In the meantime, the plans and specifications have been completed and have been forwarded to the Board of Estimate and Apportionment for final approval.

The *School Service Building* will occupy the southwest court and will be devoted to the relations of the Museum to the schools. It will be a five-story structure, 160 ft. long by 90 ft. wide on the ground floor, and 56 ft. wide on the upper floors. The first or main floor will be a huge exhibition hall, which is especially needed for the many temporary exhibitions held annually at the Museum, such as the flower shows of the New York Horticultural Society and various anniversary exhibitions. We also expect that from time to time displays of the handiwork of school children, especially in the art and design classes, will be shown in this hall. The principal function of the building, however, is to provide classrooms for visiting classes of children, laboratories and offices for the educational staff and proper facilities for the care and distribution of our Nature Study Collections and our large series of lantern slides, which are made available for the schools of the city. We regard the liberal action of the Board of Estimate and Apportionment, in providing for the erection of this building, as indicating its appreciation of the Museum's service to the schools, and we greatly appreciate this recognition of the Museum's contribution to education.

SCHOOL SERVICE AND ATTENDANCE DURING SIXTEEN YEARS

The corresponding growth of public interest in the Museum during the sixteen-year period is shown by the increase in attendance from 537,984 in 1907 to 1,431,722 in 1923, an increase of more than 166 per cent. The school service attendance in the Museum, included in the above figures, increased from 30,000 in 1907 to 134,669 in 1923, while the total number reached by the Museum's extension service to the schools has increased from 778,510 in 1907 to 5,630,811 in 1923, a gain of 623 per cent. The Annual Membership income has risen from $15,300 in 1907 to $38,395 in 1923.

INCREASE IN MUSEUM COLLECTIONS DURING 1923

The year 1923 has been exceptional in the rapid increase of collections from all parts of the world. Either an emergency gift of $300,000 for preparation and exhibition, or the annual interest on a new endowment fund of $3,000,000, is needed to keep up with this astonishing growth through the Museum's expeditions and through the liberality of the City in the erection of new buildings.

First in importance, during the year 1923, is the Faunthorpe-Vernay Collection from India, including gifts by the Viceroy of India and the Maharajas of Nepal and Mysore—a superb collection of mammals and birds valued at not less than $100,000. The Museum is also indebted to Mrs. Henry Clay Frick for the gift of a unique collection of fossils from the Siwalik Hills of India and from Burma, of a total value of $15,000. Mr. Childs Frick contributed during the year $14,800, making his total contribution $53,250 toward collections, chiefly of Pliocene age, from California and other Western States. Mr. Harry Payne Whitney has continued for the third year his annual gift of $20,000 to secure a representative collection of the birds of the Oceanic Islands of Polynesia. An indirect gift for the support of the Martin Johnson Second African Expedition by the Martin Johnson African Expedition Corporation, for five years, involves an annual expenditure of $20,000.

THIRD ASIATIC EXPEDITION

The Third Asiatic Expedition has been the most successful expedition in the whole history of the Museum. The collections and scientific results achieved during the first three years in China and Mongolia, under the direction of Roy Chapman Andrews, have far surpassed our fondest expectations. Our indebtedness to Messrs. Andrews, Granger, Berkey, Morris and Pope cannot be expressed. On invitation of Mr. Andrews, President Osborn traveled to China and Mongolia in the autumn of 1923 to inspect the personnel and management, and to visit some of the most important deposits in east-central Mongolia. On returning to the Museum headquarters in Peking, he agreed with the leader that the work in Mongolia was so profoundly important that it would require an additional five years and that the staff should be enlarged to include topography, palæo-botany, and archæology.

The expedition has aroused world-wide interest. In addition to the series of special articles in ASIA Magazine, which has strongly supported the expedition financially, a series of articles is appearing in *Natural History,* concluding with a report by the leader, entitled "The Coming Five Years, 1924-28, of the Third Asiatic Expedition." Nineteen preliminary scientific papers have appeared in Museum publications. A series of twelve volumes, to be entitled *Mongolia and China,* is projected and will include the complete scientific results of the expedition.

The great collections of fossils have been safely transported from central and western Mongolia and are now being given the place of honor in the center of the Hall of the Age of Mammals.

The President can hardly find language to express his appreciation to the scientific workers of this expedition and to the liberal contributors from twenty-five States of the Union, including the American Asiatic Association. During the three years the contributions toward the cost of the expedition have amounted to $360,000. A full list of contributors appears in the March-April, 1924, number of *Natural History,* at the close of Mr. Andrews's article, "The Coming Five Years."

TWELFTH ANNUAL REPORT

OF THE

PENSION BOARD

OF

THE AMERICAN MUSEUM OF NATURAL HISTORY

FOR THE YEAR 1924

MISCELLANEOUS PUBLICATIONS OF
THE AMERICAN MUSEUM OF NATURAL HISTORY NO. 19

NEW YORK
JANUARY 1, 1925

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OFFICERS AND MEMBERS OF THE PENSION BOARD

1924

Chairman
FELIX M. WARBURG

Vice-Chairman
RALPH W. TOWER

Treasurer
GEORGE F. BAKER, JR.

Secretary
GEORGE N. PINDAR

Trustee Members

F. TRUBEE DAVISON
WALTER B. JAMES
A. PERRY OSBORN
FELIX M. WARBURG

Employee Members

HARRY F. BEERS
GEORGE N. PINDAR
RALPH W. TOWER

Bursar
FREDERICK H. SMYTH

Counsel
LEWIS L. DELAFIELD

Consulting Actuary
S. HERBERT WOLFE

Medical Examiner
DANA W. ATCHLEY, M.D.

To the President and Trustees of The American Museum of Natural History and to the Subscribers to the Fund:

In accordance with the Rules and Regulations, I have the honor to submit herewith for your consideration the Twelfth Annual Report of the activities of the Pension Fund and of its financial operations for the fiscal year ending December 31, 1924.

THE operations of the Pension Board during the past year may in general be confined to two chief topics:

(1) General Administration, including:

(a) Recommendations that all employees undergo a physical examination upon entering the service of the Museum, (b) Status of membership, and (c) Investments.

(2) Recommendations for the revision of existing Rules and Regulations.

Heretofore the physical examination of employees has not been exacted until the Director indicated that the employee's services were satisfactory and he would become permanent in his relation to the work of the Museum. Under this system, it was often found that an employee was unable to pass the required examination satisfactorily, which was necessary in order to become a subscriber to the Pension Fund. This is in accordance with the provision that all permanent employees must contribute to the Pension Fund. When, upon examination, it developed that the applicant had some physical impairment which would prevent his participation in the Fund, it became necessary for him to seek other employment. This method was felt to be unfair, both to employer and to employee. To correct this difficulty, the Pension Board recommended to the Trustees that the Rules be changed to the extent that applicants for a position also present, with their credentials, a satisfactory health certificate. The Trustees accepted this recommendation, and it is worthy of mention that the exaction of this rule has served as a solution of many vexatious problems.

The composition of membership in the Fund is as follows: At the close of 1923 there were two hundred and eighty-five subscribing employees and eight pensioners. The end of the present year indicates a subscribing membership of two hundred and ninety-nine and seven pensioners. During the year there has occurred the death of one pensioner and of three subscribing employees, mention of whose particular service will be found in another part of this report.

In 1924, thirty-eight new employees entered the Fund. Forty-two physical examinations were made. Of this latter number, thirty-eight were able to meet the requirements. Medical and surgical treatment have been freely rendered to fifteen of our employees. Fortunately, very few major operations have been necessary, but a number of treatments for accidents have been given.

The attention of the Trustees of the Corporation is called to the desirability of placing at the disposal of the Pension Board endowed beds in the various hospitals of the city, and if this important privilege could be granted it would be a service well rendered and correspondingly appreciated.

In the Pension Report of February 1, 1924, the Treasurer reported an investment fund of the par value on December 31, 1923, of $265,600.00 and a cash balance of $12,581.36. During the year the Investment Committee thought it wise to dispose of all the Liberty Loan bonds in its possession, amounting to $91,600.00 par value, with the result that from such sale $92,810.74 was received. With the proceeds from this sale the Investment Committee secured a series of bonds which it considers entirely safe and bearing a slightly higher rate of interest, all of which further benefits the pension reserve funds. As a result, this reinvestment, together with the new investments made from the accumulations, presented, on December 31, 1924, a total invested fund of $313,000.00 and a cash balance of $13,076.53.

The second topic, the Revision of Rules, is one that has long been discussed, and also one that has engaged the careful study of our Counsel and Secretary for a considerable period, and we would take this opportunity to render to our Counsel, Mr. Lewis L. Delafield, our grateful appreciation for the thought, the attention, the patience and the work he has given to secure for our institution a pension system that is recognized by all concerned as adequate and suitable to our needs. It would be amiss not to

mention that his accomplishment of these revisions is in the main due to an intimate knowledge of the working conditions surrounding our employees.

With the helpful aid of those having to do with the active administration of the Fund, Sections 4, 9, 12, 13, 16, 17, 18, 23, 25 and 26 of the present Rules have been recommended for revision to meet existing conditions in both the method of administration and the system of pension allowances. Briefly, the amendments and changes proposed may be summarized as follows:

Section 4. Includes the previously adopted amendment providing that, in the event that a subscriber has his salary reduced and desires to continue payments on his former salary rate, the Trustees of the Corporation will also continue to subscribe in such an amount.

Section 9. Provides that an employee entering the service of the Museum shall satisfactorily pass a physical examination at the time of his entrance into the service.

Section 12. Provides that in the event of the death of a subscribing employee who shall not otherwise be entitled to a gratuity according to the Rules, there shall be returned to his beneficiary the amount of his contributions to the Fund with simple interest.

Section 13. Provides that in the future, in the event of the death of an employee while in the service, the gratuity shall be based upon the employee's average annual salary during the last three years of employment rather than computed on the basis of the total contributions to the Pension Fund as heretofore, and the further provision for the method of computation of payment of death benefits for those employees who have rendered less than three years of service.

Section 16. In its proposed revised form this section constitutes the most vital change inasmuch as it provides a new scale of retirement allowances, together with the provision that hereafter employees of twenty-five years of service may retire regardless of their ages. A full understanding of this section requires a comparison with present Rules in order to have a definite knowledge of what the Pension Board has endeavored to bring about, and which it has long felt necessary in view of the changed living and working conditions.

Section 17. In its proposed form this section simply harmonizes with the proposed amendments in the previous section and in itself involves no change other than terminology.

Section 18. Revises the entire schedule of gratuities now in force payable to the beneficiaries of those employees who have been retired. Instead of a graduated scale extending over a period of ten years with a payment of 100% of the average annual salary if death occurs within the first year, decreasing 10% each succeeding year for ten years, it is proposed that if death occurs at any time during the first ten year period, a gratuity of 50% of the average annual salary will be paid, if during the next succeeding five years, then 25%.

Section 23 makes provision for the uniform computation of service and provides that in the determination of such, a service period of less than six months shall be disregarded, and a service period of more than six months shall be regarded as a full year.

Section 25 makes provision that in the event that the pension period of a subscriber shall have expired, the Pension Board may, if the conditions demand, extend the period of payment, with the provision, however, that such extension must be agreed upon as desirable by not less than six members of the Pension Board, and with the further provision that such extension of pension period will not constitute an undue charge against the Fund.

Section 26 has been revised in order to conform to the present rules of the Corporation providing for the number of Trustees necessary to recommend, or pass, any proposed amendment to the Rules.

All of these revisions are recommended by your Pension Board and are herewith submitted for adoption by the Trustees of the Corporation. We trust that, with due appreciation of the time and thought which the Pension Board has devoted to this matter, and with a full understanding of our financial condition, this Board, at its present full meeting, will feel warranted in adopting these recommendations to the end that the New Year will witness the accomplishment of a perfected system which, in its entirety, will prove beneficial to both employer and employee.

FELIX M. WARBURG,
Chairman.

New York, January 1, 1925.

STATEMENT OF MEMBERSHIP

1924

ACTIVE

Subscribing Employees, December 31, 1923		285
New Subscribers, January 1–December 31		38
		323
Resignations	21	
Deaths	3	24
Membership December 31, 1924		299

RETIRED

Pensioned Employees 1924	8	
Deaths	1	
Pensioned Employees December 31, 1924		7
Total Membership, December 31, 1924		306

STATEMENT OF PENSION ALLOWANCES

Name	Yearly Amount	Date of Retirement	Period of Payment
H. Ernestine Ripley	$416.00	Jan. 1, 1919	16 years
George A. Young	253.03	Feb. 1, 1919	15 years
Adam Hermann	988.00	Dec. 31, 1919	Life
James Kenney	406.16	Sept. 1, 1922	18 years
A. E. Anderson	250.00	Jan. 1, 1923	20 years
*Herman Langfelder	390.59	June 1, 1923	15 years, 9 months
James McGovern	458.62	Sept. 1, 1923	17 years, 3 months
George J. Beeth	515.54	Nov. 21, 1923	18 years, 9 months

*Deceased March 4, 1924.

Deceased

ALBERT HOELZLE

Albert Hoelzle, born in the City of New York on February 14, 1879, was one of the highly valued employees of the Museum. He brought to his position at the information desk during his twenty-four years of service there, an interest and tact that gave satisfaction to all. For a number of years, he performed his duties as assistant custodian of the Museum with the same ability. Very few, even of his close friends, at the Museum realized that for a long time before his death he was suffering from a physical impairment that must have taxed his cheerfulness sorely. In spite of this, however, the efficient service he rendered in his positions was so noteworthy that he was frequently commended by the officials of the Museum. His sudden passing away on August 20, 1924, has caused deep regret among the many friends he possessed.

BYRON E. HOOVER

Byron E. Hoover was born in Gouverneur, New York, on September 2, 1861. He entered the employ of the Museum in 1900 and for twenty-four years rendered efficient and most satisfactory service in the several departments to which he was assigned. Mr. Hoover possessed the rare faculty of making friends and his cheerful presence was always welcomed among the employees. In the Department of Anthropology, where he was employed for many years, his loyalty, painstaking care and knowledge of the material coming under his care, earned for him the esteem of the officials in charge. His unexpected death on November 12, 1924, occasioned a feeling of personal loss to a host of friends and among his co-workers.

Deceased

EDMUND OTIS HOVEY

Edmund Otis Hovey was born in New Haven, Connecticut, September 15, 1862. Dr. Hovey joined the Scientific Staff of the Museum in 1894, serving at first as Assistant Curator in Geology. In 1901 he became Associate Curator and in 1910 Curator, and occupied this position at the time of his death. During this long period of service in his chosen field of science, Dr. Hovey also most ably and efficiently served as the Editor of *Natural History* for ten years, Secretary of the New York Academy of Sciences for nine years and Secretary of the Geological Society of America for sixteen years, besides devoting time and energy to the promotion of church and civic affairs. Dr. Hovey was a man of scholarly attainments, ranking among the first in his field. He was possessed of a personality which endeared him to all with whom he came in contact, and had the gift of making and keeping friends. His sudden death, September 27, 1924, on the eve of his departure to take up new field work, left many colleagues, associates and friends who will ever cherish his memory.

HERMAN LANGFELDER

Herman Langfelder was born in Austria-Hungary August 26, 1857, and served for more than fifteen years as one of the Museum's capable attendants. He was respected by his co-workers and enjoyed the confidence of the official in charge of his department. Failing health compelled his retirement in 1923. After nearly a year of acute suffering, which he bore with fortitude and patience, he passed away March 4, 1924.

FINANCIAL STATEMENT 1924

Invested Funds

	Par Value	Income	Book Value
Endowment Fund.....	$1,258.37	$50.34	$1,140.39
Investment Fund.....	311,741.63	13,737.16	292,347.49
Totals.....	$313,000.00	$13,787.50	$293,487.88

STATEMENT OF INVESTED FUNDS

	Securities	*Due*	*Rate of Int.*	*Annual Interest*	*Book Value*	*Interest Payable*
$15,000 00	Atchison, Topeka & Santa Fe Ry. Co. Genl. Mtge	1995	4%	$600 00	$13,278 75	Apr.-Oct.
10,000 00	Atlantic Coast Line R.R. Co. 1st Cons	1952	4	400 00	8,940 00	Mar-Sept.
10,000 00	Baltimore & Ohio R.R. Co. (Pittsburgh, Lake Erie & W. Va. System) Rfg. Mtge	1941	4	400 00	8,194 75	May-Nov.
9,000 00	Baltimore & Ohio R.R. Co. 1st Mtge	1948	4	360 00	7,818 50	Apr.-Oct.
5,000 00	" " " " " Rfg. & Genl. Mtge. Ser. "A"	1995	5	250 00	5,050 00	June-Dec.
10,000 00	Chicago & North Western Ry. Co. Genl. Mtge	1987	4	400 00	8,982 50	May-Nov.
10,000 00	Chicago, Burlington & Quincy R.R. Co. (Illinois Div.)	1949	4	400 00	9,095 00	Jan.-July
10,000 00	" " " " " " Genl. Mtge	1958	4	400 00	8,806 25	Mar.-Sept.
5,000 00	Chicago, Milwaukee & St. Paul R.R. Co. Genl. Rfg. Mtge. Ser "A"	2014	4½	225 00	4,668 75	Apr.-Oct.
5,000 00	Chicago & North Western Ry. Co. Genl. Mtge	1987	5	250 00	5,007 50	May-Nov.
9,000 00	Cleveland Short Line Ry. Co. 1st Mtge	1961	4½	405 00	8,703 50	Apr.-Oct.
10,000 00	Delaware & Hudson Co. 1st & Rfg. Mtge	1943	4	400 00	8,927 50	May-Nov.
5,000 00	Great Northern Ry. Co. 1st & Rfg. Mtge. Ser. "A"	1961	4¼	212 50	4,456 25	Jan.-July
5,000 00	Illinois Central R.R. Co. Rfg. Mtge	1955	4	200 00	4,518 75	May-Nov.
10,000 00	" " " " "	1955	5	500 00	9,948 75	May-Nov.
10,000 00	Louisville & Nashville R.R. Co. Unified	1940	4	400 00	9,126 25	Jan.-July
10,000 00	" " " " " 1st & Rfg. Mtge. Ser "B"	2003	5	500 00	10,268 75	Apr.-Oct.
10,000 00	Montana Central R.R. Co. 1st Mtge	1937	5	500 00	10,006 25	Jan.-July
3,000 00	Corporate Stock of the City of New York	1927	4½	135 00	3,001 88	Jan.-July
5,000 00	New York Central & Hudson River R.R. Co. Rfg. & Imp. Mtge. Ser "A"	2013	4½	225 00	4,706 25	Apr.-Oct.
20,000 00	New York Central R.R. Co. Rfg. & Imp. Mtge. Ser "C"	2013	5	1,000 00	19,605 00	Apr.-Oct.
15,000 00	Norfolk & Western R.R. Co. 1st Cons. Mtge.	1996	4	600 00	13,701 00	Apr.-Oct.
5,000 00	Northern Pacific Ry. Co. Rfg. & Imp. Mtge. Ser "A"	2047	4½	225 00	4,825 00	Jan.-July
7,000 00	" " " " " " " " Ser. "C"	2047	5	350 00	6,884 25	Jan.-July
5,000 00	Oregon Short Line R.R. 1st Cons. Mtge. Stpd	1946	5	250 00	5,045 00	Jan.-July
10,000 00	Pennsylvania R.R. Co. Genl. Mtge. Ser "A"	1965	4½	450 00	9,496 25	June-Dec.
15,000 00	" " " " " Ser "B"	1968	5	750 00	15,083 25	June-Dec.
5,000 00	St. Louis, Peoria & Northwestern Ry. Co. 1st Mtge	1948	5	250 00	4,957 50	Jan.-July
20,000 00	St. Paul, Minneapolis & Manitoba Ry. Co. Cons. Mtge	1933	4½	900 00	19,542 50	Jan.-July
20,000 00	Southern Pacific R.R. Co. 1st Rfg. Mtge	1955	4	800 00	17,827 00	Jan.-July
10,000 00	Union Pacific R.R. Co. 1st. Mtge. R.R. & L. G	1947	4	400 00	9,292 50	Jan.-July
10,000 00	" " " " " Lien & Rfg. Mtge	2008	4	400 00	8,740 00	Mar.-Sept.
5,000 00	" " " " " " " " " "	2008	5	250 00	4,982 50	Mar.-Sept.
$313,000 00				$13,787 50	$293,487 88	

PENSION FUND ACCOUNT

Receipts, 1924

Cash on hand January 1, 1924			$12,581.36
Contributions of Subscribing Employees:			
Deductions of 3% from payrolls of			
City Maintenance Account	$8,220.28		
General Account	5,224.75		
Morris K. Jesup Fund Account	5,066.94		
Special Funds Account	333.79		
Corporate Stock Account	525.27		
Museum Building Fund Account	37.10		
Incidental Account	.81		
	$19,408.94		
Personal Contributions of Subscribing Employees	627.67	$20,036.61	
Contributions of Board of Trustees:			
To Equal Contributions of Subscribing Employees		20,036.61	
Return of Contributions (Previously Refunded)		496.55	
Interest on Repayment of Contributions and Interest		1.02	
Interest on Contributions (Refund)		59.29	
Income from Investment Fund	$12,565.20		
Income from Endowment Fund	50.34	12,615.54	
Interest on Credit Balances		191.22	
			53,436.84
Investment Fund:			
Sale of Securities			92,810.74
Bursar's Account			1,000.00
			$159,828.94

Examined and Approved { A. PERRY OSBORN, F. TRUBEE DAVISON } *Auditing Committee.*

PENSION FUND ACCOUNT

Disbursements, 1924

Return of Contributions	$4,268.15		
Interest on Contributions Returned	342.45		
		$4,610.60	
Service Pensions "A"	$1,187.11		
Service Pensions "B"	250.00		
Service Pensions "E"	988.00		
Pensions in Event of Illness, Dismissal, etc	931.54		
Death Gratuities paid under Section 13	5,571.13		
Death Gratuities paid under Section 18	1,071.78		
		9,999.56	
Expenses		50.00	
			$14,660.16
Purchase of Securities:			
Investment Fund			131,092.25
Loan Account			1,000.00
Cash on hand December 31, 1924:			
Deposited with the United States Trust Company of New York		$12,076.53	
Deposited with the Colonial Bank (Bursar's Account)		1,000.00	
			13,076.53
			$159,828.94

E. and O. E.

NEW YORK, *December 31, 1924.*

GEORGE F. BAKER, JR.,
Treasurer.

PENSION FUND—SPECIAL FUNDS ACCOUNT

Receipts, 1924

Welfare Fund:			
Balance, January 1, 1924		$71.47	
Transferred from General Account (Allowances from Trustees)	$193.84		
Transferred from Interest on Credit Balances	1.64		
		195.48	
			$266.95
Interest on Credit Balances:			
Earnings to December 31, 1924			1.64
			$268.59

Examined and Approved { A. PERRY OSBORN, F. TRUBEE DAVISON } *Auditing Committee*

in account with GEORGE F. BAKER, JR., *Treasurer*

PENSION FUND—SPECIAL FUNDS ACCOUNT

Disbursements, 1924

Welfare Fund	$193.84
Interest on Credit Balances:	
Transferred to Welfare Fund	1.64
Cash on hand December 31, 1924:	
Deposited with United States Trust Company of New York	73.11
	$268.59

E. and O. E.

GEORGE F. BAKER, JR.,
Treasurer.

NEW YORK, *December 31, 1924.*

Mis-

RULES AND REGULATIONS

of the

PENSION FUND

of

THE AMERICAN MUSEUM OF NATURAL HISTORY

ADOPTED BY THE BOARD OF TRUSTEES
FEBRUARY 3, 1913
IN EFFECT MARCH 1, 1913
REVISED AND IN EFFECT JANUARY 15, 1925

MISCELLANEOUS PUBLICATIONS OF
THE AMERICAN MUSEUM OF NATURAL HISTORY NO. 20
NEW YORK
1925

RULES AND REGULATIONS

of the

PENSION FUND

of

THE AMERICAN MUSEUM OF NATURAL HISTORY

ADOPTED BY THE BOARD OF TRUSTEES
FEBRUARY 3, 1913

IN EFFECT MARCH 1, 1913

REVISED AND IN EFFECT JANUARY 15, 1925

MISCELLANEOUS PUBLICATIONS OF
THE AMERICAN MUSEUM OF NATURAL HISTORY NO. 20

NEW YORK

1925

OFFICERS AND MEMBERS OF THE PENSION BOARD

1924

Officers

Chairman
FELIX M. WARBURG

Vice-Chairman
RALPH W. TOWER

Treasurer
GEORGE F. BAKER, JR.

Secretary
GEORGE N. PINDAR

Trustee Members

F. TRUBEE DAVISON
WALTER B. JAMES
A. PERRY OSBORN
FELIX M. WARBURG

Employee Members

HARRY F. BEERS
GEORGE N. PINDAR
RALPH W. TOWER

Bursar
FREDERICK H. SMYTH

Counsel
LEWIS L. DELAFIELD

Consulting Actuary
S. HERBERT WOLFE

Medical Examiner
DANA W. ATCHLEY, M.D.

American Museum of Natural History

RESOLUTION

ESTABLISHING PENSION AND GRATUITY FUND AND RULES FOR THE ADMINISTRATION THEREOF

SECTION 1. The American Museum of Natural History (hereinafter referred to as the Corporation), hereby adopts the following rules for the establishment of a fund to be known as the Pension Fund of the American Museum of Natural History, and for the administration and disbursement thereof. Such fund shall be held, administered and disbursed in the manner hereinafter specified. Hereafter no pension or gratuity shall be awarded by the Corporation to any employee who shall have been eligible to become a subscriber to the pension plan hereby initiated, or to any member of his or her family or person dependent upon him or her, except in accordance with the rules hereby prescribed.

Establishment of Fund

§2. A committee is hereby created to be known as the Pension Board, which shall report its transactions to the Trustees of the Corporation. The said Pension Board shall consist of seven members, all of whom shall be appointed by said Trustees of the Corporation, four of whom shall be members of the Board of Trustees of the Corporation, and three of whom shall be employees of the said Corporation, who are not members of such Board. The members of said Pension Board shall serve as such for one year and until their successors are appointed. A majority of the members of the said Pension Board shall constitute a quorum for the transaction of business. Subject to the control of the Trustees of said Corporation, and to the rules hereby prescribed, the said Pension Board shall administer, invest and disburse the said Pension Fund. The said Pension Board shall elect from its members a Chairman and Secretary and may elect such other officers as it shall deem advisable. It may also adopt regulations, not incon-

Pension Board

sistent with these rules, for the safe-keeping, investment and administration of said Pension Fund and the disbursing thereof. The Treasurer and Assistant Treasurer of the Corporation respectively shall, ex-officio, be the Treasurer and Assistant Treasurer respectively of the Pension Board.

§3. The said Pension Fund shall consist of contributions to be made by the Corporation, of contributions to be made by such employees of the Corporation as become subscribers, and of such moneys, if any, as shall be contributed thereunto by other persons. Wherever the word gratuity or pension is used hereinafter, it means a gratuity or pension payable out of such fund. The legal title of the said fund and of all securities and investments of which the same shall be composed shall be, and remain, in the Corporation, subject to the obligation to use the same for the purposes herein expressed.

Pension Fund

§4. The Corporation agrees to contribute to said Pension Fund, during each year, in instalments which shall be paid to said Pension Fund at such time or times as the Board of Trustees shall direct, a sum equal to three per cent. of the annual salaries paid during that year to those of its employees who are subscribers to said fund; but if, after the reduction of the salary of any subscribing employee, such employee, pursuant to the privilege hereinafter granted, shall continue to subscribe to the said Pension Fund at the same rate as before such reduction, the Corporation agrees that, notwithstanding such reduction, it will continue thereafter to contribute to such Pension Fund a sum equal to that contributed by such employee. Each employee of the said Corporation who shall become a subscriber to the said Fund, agrees that from the date of his or her subscription, he or she will contribute a sum equal to three per cent. of the salary paid to him or to her by said Corporation. Such contributions by such employees shall be made in instalments, on each pay day, and each such instalment shall be deducted by the Corporation from the pay of said subscriber and paid into the Pension Fund. In the event that the salary of any subscribing employee shall be reduced, he or she may, nevertheless, contribute to the said Pension Fund at the same rate as before such reduction, and, in that

Contributions

case, upon retirement, he or she shall be entitled to the same gratuity or pension as he or she would have enjoyed if such reduction had not taken place.

§5. In the event that leave of absence without pay shall be granted to a subscribing employee who shall still remain in the service of the Corporation, the said subscribing employee shall continue to contribute to the said Pension Fund in monthly instalments a sum equal to that which he or she was contributing during the period immediately preceding the granting of such leave of absence, and thereupon, for the purposes herein set forth, the said employee shall be deemed to remain in the continuous service of the Corporation. A sum equal to that so contributed by such employee shall be contributed, in such a case, by the Corporation.

Absence Without Pay

§6. If the contributions of any subscribing employee who remains in the service of the Corporation shall remain unpaid, for any reason, for a period of six months, the said subscribing employee shall no longer be entitled to any of the benefits herein mentioned, and the amount of his or her contributions to said Pension Fund, with simple interest at the rate of three per cent. per annum, less his or her indebtedness to said Pension Fund, shall be returned to him or her.

Non-payment of Contributions

§7. If at any time it shall appear that it is unnecessary for the successful administration of the pension plan herein set forth, or as the same hereafter may be modified or amended, to exact contributions from the Corporation and the subscribing employees of so large an amount as that above referred to, the Pension Board, by the concurrent vote of at least five of its members, may provide for a ratable reduction of the payments to be made by the Corporation and the subscribing employees respectively. But no such resolution shall become effective until the same shall be reported to the Trustees of the Corporation and approved by the vote of a majority of such Trustees attending a regular or special meeting of the Board of Trustees. By a resolution similarly adopted and approved, the amounts payable as gratuities or pensions under these rules may be increased.

Reduction of Contributions

§8. Such reasonable expenses as shall be essential to the due administration of the Pension Fund may be incurred by the Pension Board and may be paid from such fund.

Expenses

§9. All persons who shall be permanent employees of the Corporation when these rules take effect and who, if males, shall be above the age of twenty-one years, or, if females, above the age of eighteen years, shall have the option, within sixty days after these rules take effect, or at any time thereafter with the consent of the Pension Board and upon compliance with such terms as may be imposed by said Board, to become subscribers to the Pension Fund hereby established, and any persons who shall be permanent employees of the Corporation, when these rules take effect, and if males, shall then be less than twenty-one years of age, or, if females, less than eighteen years of age, shall have the option respectively, if still in the permanent employ of the Corporation, to become such subscribers when they shall attain such respective ages. All persons hereafter employed by the Corporation as permanent employees being over the age of twenty-one years in the case of males, and of eighteen years in the case of females, and under the age of forty-five years, who shall have satisfactorily passed such physical and health examination, if any, as shall, at the time when such person is employed, be required by the rules of the Corporation, shall be required to become subscribers. No person over the age of forty-five years hereafter becoming an employee of the Corporation shall be permitted to become a subscriber.

Option and Age Requirements

§10. For the purpose of facilitating the Pension Board in determining who shall be qualified as permanent employees to become subscribers when these rules take effect, the Director, immediately upon the adoption of these rules, shall certify to the Pension Board the names of all persons whom he deems to be permanent employees of the Corporation.

Director to Certify who are Permanent Employees

§11. It shall be the duty of the said Director whenever and as often as persons shall be employed by the Corporation

after these rules take effect, immediately to certify the fact to the Pension Board with a statement whether, in his opinion, the employment of such persons is likely to be permanent.

Resignation or Dismissal

§12. In the event of the resignation or dismissal, or of the death, of a subscribing employee who shall not be entitled to a pension or gratuity under any other provision of these rules, there shall be returned to such employee if living, or if he be dead, there shall be paid to his beneficiary, if any, designated as hereinafter prescribed, or, in default of such beneficiary, to the nearest relative of such deceased employee according to the order of precedence enumerated in Section 19 of these rules, a sum equal in amount to his or her contributions to the Pension Fund with simple interest thereon at the rate of three per cent. per annum.

Gratuity Paid in Event of Death While in the Service

§13. In the event of the death of a subscribing employee who (1) is not entitled to a pension under any of the provisions of these rules, or (2) who, being entitled to a pension under these rules by reason of age or term of service, is still in the service of the Corporation at the time of his or her death, there shall be paid to the beneficiary or beneficiaries, if any, of such deceased employees, designated as hereinafter prescribed, or in default of such beneficiary or beneficiaries, to the nearest relative of such deceased employee according to the order of precedence enumerated in Section 19 of these rules, a gratuity in one payment of an amount to be determined as follows, namely:

(a) In the case of a subscribing employee, who shall die after less than three years of continuous service, an amount equal to twenty-five per cent. of his or her average annual salary during the time when he or she was a subscribing employee computed on the basis of his or her contributions to the Pension Fund, with an increase of two per cent. of such average annual salary for each additional year of service after the first year.

(b) In the case of a subscribing employee, who shall die after three years or more of continuous service, an amount

equal to twenty-five per cent. of his or her average annual salary during the last three years of his or her employment, computed on the basis of his or her contributions to the Pension Fund, with an increase of two per cent. of such average annual salary for each additional year of service after the first year; provided, however, that such gratuity shall, in no case, exceed a sum equal to the average annual salary of said employee during the last three years of his or her employment.

Permanent Disability

§14. In the event that a subscribing employee who is not in receipt of, or entitled to, a pension under any of the other provisions of these rules, shall, by illness or accident, be totally and permanently disabled, there shall be paid to such employee a gratuity, in one payment, of an amount equal to that which, under the provisions of these rules, would have been paid to the widow or husband of such subscribing employee, as the case may be, had such employee died at the time when such total and permanent disability arose; provided, however, that no such gratuity shall be paid, and no right to receive such gratuity shall accrue, unless or until a resolution shall be adopted by the concurrent votes of at least five of the members of the Pension Board directing such payment.

Right to Receive Pension

§15. The right of a subscribing employee to receive a pension under any of the rules hereby adopted, is qualified by the following proviso (which shall be deemed a part of each of the rules herein contained, regulating the granting of pensions), namely: that if such employee shall be convicted of a felony committed while in the service of the Corporation, or shall be dismissed by the Corporation for dishonesty in his relations to the Corporation, the Trustees of the Corporation, upon recommendation of a resolution adopted by the votes of not less than six members of the Pension Board, may exclude the said employee from all rights to receive a pension under these rules. In that event, there shall be paid to the said employee a sum equal to his or her total contributions to the Pension Fund, with simple interest at the rate of three per cent. per annum, and thereupon all of the rights of said employee under these rules shall cease. A resolution of the Trustees adopted as aforesaid shall be conclusive.

§16. All male subscribing employees who shall reach the age of sixty-five years, after fifteen years of continuous service of the Corporation, or the age of sixty years, after twenty years of continuous service, and all female subscribing employees who shall reach the age of sixty years, after fifteen years of continuous service, or the age of fifty-five years, after twenty years of continuous service, and all subscribing employees of either sex, irrespective of age, who shall retire after twenty-five years of continuous service, shall be entitled, upon retirement, whether at their own request or by action of the Corporation, to receive pensions in the amounts and for the periods herein stated:

Pension Allowances

(*a*) A male subscribing employee who shall reach the age of sixty-five years, or a female subscribing employee who shall reach the age of sixty years, and shall retire, in either case, after the completion of the number of years of continuous service shown in the first column of the table next hereinafter annexed, shall be paid, upon retirement, an annual pension of that percentage of his or her average annual salary for the last three years of his or her employment (computed on the basis of his or her contributions to the Pension Fund during such three years) that is shown in the second column of said table, opposite the number of his or her years of completed service shown in the first column thereof; provided, however, that the minimum pension to be paid to any such subscribing employee shall be the sum that is shown in the third column of said table opposite the number of his or her years of completed service shown in the first column thereof. Such pension, however, in the case of an employee of less than twenty-five years of continuous service, shall be paid only for a period equal to the term of continuous service of said employee, but in the case of an employee having twenty-five years or more of continuous service such pension shall be paid for life.

Number of Years of Continuous Service	Percentage of Average Salary As Aforesaid	Minimum Yearly Pension
15	25%	$300.
16	27%	$300.
17	29%	$300.
18	31%	$300.
19	33%	$300.
20	35%	$420.
21	37%	$420.
22	40%	$420.
23	43%	$420.
24	46%	$420.
25	50%	$600.

(*b*) A male subscribing employee who shall reach the age of sixty years, or a female subscribing employee who shall reach the age of fifty-five years, and shall retire in either case after completing the number of years of continuous service shown in the first column of the table next hereinafter annexed (but before the completion of the twenty-fifth year of his or her continuous service) shall be paid, upon retirement, an annual pension of that percentage of his or her average annual salary for the last three years of his or her employment (computed on the basis of his or her contributions to the Pension Fund during such three years) that is shown in the second column of said table, opposite the number of his or her years of completed service shown in the first column thereof; provided, however, that the minimum pension to be paid to any such subscribing employee shall be $300. per year. Such pension shall be paid, however, only for a period equal to the term of continuous service of said employee.

Number of Years of Continuous Service	Percentage of Average Salary as Aforesaid
20	25%
21	27%
22	30%
23	35%
24	40%

(*c*) A male subscribing employee under the age of sixty-five years, or a female subscribing employee under the age of sixty years, who shall retire (or who shall be retired by the Corporation by reason of illness or the abolition of his or her position or otherwise as specified in Section 17) in either case after the number of years of continuous service shown in the first column of the table next hereinafter annexed, shall be paid, upon retirement, an annual pension of that percentage of his or her average annual salary for the last three years of his or her employment (computed on the basis of his or her contributions to the pension fund during such three years) that is shown in the second column of the said table, opposite the number of his or her years of completed continuous service shown in the first column thereof; provided, however, that the minimum pension to be paid to any such subscribing employee shall be the sum that is shown in the third column of said table opposite the number of his or her years of completed service shown in the first column thereof. Such pension shall be paid for life.

Number of Years of Continuous Service	Percentage of Average Salary as Aforesaid	Minimum Yearly Pension
25	45%	$420.
26	46%	$420.
27	47%	$420.
28	48%	$420.
29	49%	$420.
30	50%	$600.

Pension Allowances in Cases of Illness, Dismissal, etc., After 15 Years of Service

§17. Except as herein elsewhere provided, a subscribing employee who, after fifteen years of continuous service, shall be retired by the Corporation, by reason of illness, or of the abolition of the position theretofore held by him or her, or, at the expiration of the yearly or other term of service contracted for, shall not be reappointed, or shall be dismissed under any circumstances or for any causes (other than under the circumstances or for the causes specified in Section 15) and who shall not be entitled to a pension under any other provision herein contained, shall be entitled, irrespective of age, to a pension of

the amount and for the period specified in Section 16, subdivision (*a*), if he or she shall have served for more than fifteen and for less than twenty-five years. This section shall not apply to the case of a subscribing employee who shall resign or voluntarily sever his or her relations as an employee of the Corporation.

Gratuity Paid to Relatives or Beneficiary

§18. In the event of the death of a former subscribing employee who is in receipt of a pension, if such death occurs within fifteen years after the payment of his or her pension commenced, then and not otherwise, there shall be paid to the beneficiary or beneficiaries of such employee, designated as herein elsewhere prescribed, or, in default of such beneficiary or beneficiaries, to the nearest relative of such deceased, in the order of precedence specified in Section 19 of these rules, a gratuity in one payment, which, (1) if such death occurs within ten years after the payment of his or her pension commenced, shall be a sum equal to fifty per cent. of his or her average annual salary for the last three years when he or she was a subscribing employee, computed on the basis of his or her contributions to the Pension Fund during said period; or, (2) if such death occurs ten or more years, but less than fifteen years, after the payment of his or her pension commenced, shall be a sum equal to twenty-five per cent. of such average annual salary for said period, computed in the same manner.

Order in which Payment of Gratuities will be Made

§19. Any gratuity which, under any of the provisions of these rules, shall be payable upon the death of any person who shall have been a subscribing employee, shall, if there be no beneficiary designated to receive the same as herein elsewhere provided, be paid to the following persons:

(*a*) If the deceased was a male, then to the widow.

(*b*) If the deceased was a female, then to the husband.

(*c*) If, in the case of a male employee, there be no widow, and in the case of a female employee, there be no husband,

surviving, then to the issue of such deceased employee, in equal portions per stirpes.

(*d*) If there be no widow, husband or issue of such deceased employee, then to the mother.

(*e*) If there be no widow, husband, issue or mother, then to the father.

(*f*) If there be no widow, husband, issue, mother or father, then to the sisters and brothers (whether of the whole or the half blood) in equal shares.

(*g*) If there be no designated beneficiary and no relative surviving within the said degree, then to the executors or administrators of the said deceased employee.

Employee's Right to Pension Non-assignable

§20. The right of a subscribing employee to receive a pension or gratuity hereunder shall not be assignable or bequeathable, and any attempted assignment or bequest thereof shall be void and shall be disregarded by the Corporation and the Pension Board.

Right to Designate Beneficiary

§21. Any subscribing employee may designate a person or persons, absolutely or contingently, as his or her beneficiary or beneficiaries for the purposes specified in these rules. Any such designation may be revoked at any time by the subscriber and a new beneficiary may be substituted. But no such designation or revocation thereof shall be valid, unless made by a written instrument, in a form approved by the Pension Board, and filed with the Pension Board during the lifetime of the subscriber.

Beneficiary's Right to Gratuity Non-assignable

§22. The right of a beneficiary designated pursuant to these rules to receive a gratuity shall not be assignable or bequeathable, and any attempted assignment or bequest thereof shall be void and shall be disregarded by the Corporation and the Pension Board.

§23. For the purpose of ascertaining the term of past service of any person who shall be in the permanent service of the Corporation when these rules take effect and who shall become a subscribing employee, the entire period prior to that date during which such person received pay from the Corporation, but after, in the case of a male employee, he had attained the age of twenty-one years, or, of a female, the age of eighteen years, shall be taken into consideration. As applied to the period after these rules take effect, the words continuous service, or other similar words, as used in these rules, shall be construed as meaning that period for which, after becoming a subscriber, and after the age of twenty-one years in the case of males, and of eighteen years in the case of females, a subscribing employee shall have remained in the service of the Corporation, and shall have paid his or her contributions to said Pension Fund without a greater continuous break in his or her service than one year, and provided that, upon returning to the service after any such break in the continuity thereof, the said subscriber shall have paid to the Pension Fund a contribution of such amount as shall be deemed equitable by the Pension Board; and provided, further, that in computing the period of continuous service of any employee for any purpose under these rules, a portion of a year less than six months shall be disregarded, and a portion of a year in excess of six months shall be treated as a full year.

Computing Service

§24. Subscribing employees who leave the service for less than one year and who omit upon their return to the service to make such payments to the Pension Fund as have been required under the last preceding section, and subscribing employees who leave the service for more than one year and then return, shall be deemed new employees.

Reinstatement

§25. It is hereby understood and agreed that the Trustees of the Corporation, upon recommendation of a resolution of the Pension Board adopted by the votes of not less than six of its members:

Rights of Trustees

First: May exclude any employee of the Corporation from the right to become a subscriber, or permit any employee to become a subscriber.

Second: May terminate the subscription of any subscribing employee who shall not, at the time, be entitled to any gratuity or pension hereunder, upon the repayment to such employee of his or her subscriptions to said fund, with simple interest at the rate of three per cent. per annum. Thereupon such employee shall cease to be entitled to any gratuity or pension under these rules.

Third: May grant suitable gratuities or pensions to any subscribing employee, or to members of his or her family, or to persons dependent upon him or her, even though no provision is made therefor by these rules, and may prolong the pension period of any former subscribing employee which may have expired under the provisions of these rules; provided that the powers conferred by this subdivision of this section shall not be exercised unless, by a writing, to be subscribed by not less than six members of the Pension Board and filed with the Trustees of the Corporation, it shall be certified that, in the opinion of the subscribers, the proposed gratuity or pension will not constitute an undue charge upon the Pension Fund; or,

Fourth: Upon such terms as justice shall require, may reinstate any former subscribing employee whose rights shall have lapsed, or shall have been terminated as hereinbefore provided, hereunder.

§26. The Trustees of the Corporation by the vote of not less than a majority of all of the members of the Board of Trustees present at a meeting at which at least nine of said Trustees shall be present, and upon the recommendation of a resolution adopted by the votes of not less than five members of the Pension Board, at any time or times may alter, amend or repeal any or all of the rules hereby prescribed, and any such alteration, amendment or repeal shall be binding upon the subscribers hereto, and upon any persons who then are, or may thereafter become, entitled to any gratuity or pension hereunder, in like manner as though said alteration, amendment or repeal had been made at the time of the original adoption of these rules. Such power is to be construed as being in addition to the power to discontinue this pension system as hereinafter provided.

Amendments

§27. If the Pension Board shall consider that by reason of his or her minority, illness, imbecility, insanity, senility or for any other reason, it is undesirable to make any payment provided for by these rules to the person entitled thereto, the said Pension Board shall be at liberty to apply any sum or sums so payable to such person to the use of such person, in any way that the said Board may deem advisable, or to make such payment to any third person who, in the judgment of said Board, will apply the same in such manner as will be beneficial to the person entitled thereto. In the case of payments due to minors, the said Board, in its discretion, may make such payment to such minors, or to any surviving parent or relative of such minors or to the person with whom they reside. Upon making any such application of such moneys to the use of the person entitled thereto, or any such payment to a third person for his or her benefit, the Corporation and the Pension Board shall be discharged from all further responsibility for the sums so applied or paid. The Pension Board shall be at liberty, however, to withhold any payment due to a person under legal disability, until a representative of such person competent to receive such payment in his or her behalf shall be appointed pursuant to law.

Payments to Minors and Incompetents

§28. It is understood and agreed that beyond such contributions to the Pension Fund as it is required to make by these rules, no liability shall attach to the Corporation under these rules; that the said Corporation does not guarantee that the said Pension Fund will prove sufficient to pay the gratuities and pensions contemplated by these rules; and that the said Corporation shall not, in any event, be liable for any loss which may occur by reason of any maladministration, misapplication or other diminution of said Pension Fund.

Liability of Corporation

§29. No personal liability shall attach hereunder to any subscribing employee other than for his or her own contribution to the Pension Fund as hereinbefore provided. The obligation of the subscribers to contribute to said Pension Fund is several and not joint.

Liability of Employee

§30. An appeal to the Trustees of the Corporation may be taken by any person deeming himself or herself aggrieved by any action of the Pension Board. The decision of such appeal by the said Trustees shall be conclusive. Subject only to such restrictions as are placed upon them by these rules, the Trustees of the Corporation shall supervise and control the actions of the Pension Board, and may rescind any action or resolution of such Board.

Appeals

§31. The use of the words annual pensions or pensions payable annually shall not preclude the Pension Board from causing such pensions to be paid in monthly or other instalments before the expiration of a full year. All pensions herein provided for shall be apportionable.

Payments

§32. The Trustees of the Corporation, upon the recommendation of a resolution adopted by the votes of not less than five of the members of the Pension Board, may, at any time, discontinue the pension system hereby established, and distribute the Pension Fund as follows:

Liquidation

(*a*) All claims upon the said Pension Fund which shall have matured at the time shall be paid.

(*b*) All outstanding pensions shall be commuted into one sum, which shall be paid to the person then entitled to receive such pension. Such a commutation in the case of a person entitled to a pension for life shall be on the basis of the American Experience Table of Mortality with interest at four per centum per annum, and in the case of pensions payable for a period other than for life, the future payments shall be commuted by the payment to the person entitled thereto, of one sum equal to the present value of the remaining unpaid instalments for the periods payable according to the same table of mortality and the same rate of interest.

(*c*) All contributions theretofore made to the Pension Fund by the contributing members then in good standing shall be returned to them with simple interest at three per cent. per annum.

(*d*) There shall be repaid to the Corporation, without interest, such funds as shall have been contributed by the Corporation, or by any other person or persons other than the subscribing employees.

(*e*) Any excess remaining shall be divided among the subscribing employees in good standing, each such subscribing employee's share to be in the proportion that the payment made to him or her under the above subsection (*c*) bears to all of the payments made under said subsection.

The distribution shall be made in the order above stated. After the payments above provided for, or such of them as the proceeds of the Pension Fund will suffice to pay, shall have been made, the pension system hereby initiated shall cease and determine, and no person or persons shall have any further claim upon the said Pension Fund, or upon the Corporation, or its officers or Trustees or the members of the Pension Board by reason of anything herein contained.

§33. The foregoing rules shall take effect on the first day of March, 1913.

APPLICATION FORMS

APPLICATION FOR MEMBERSHIP*

To the Pension Board of the
American Museum of Natural History:

I do hereby subscribe to the Pension Fund of the American Museum of Natural History and to the Rules and Regulations of said Fund, a copy of which has been received by me. I agree to be bound by the said Rules and Regulations and by any amendments thereof adopted as therein prescribed.

I hereby designate as my beneficiary or beneficiaries, for the purposes specified in said Rules and Regulations, the following person.....who now reside.....at the following address....., namely:

NAME	ADDRESS	RELATIONSHIP
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....

In the event that I shall apply at any time for a gratuity pursuant to the provisions of Section 14 of said Rules and Regulations, I agree to submit to

*The necessary forms will be supplied, upon application, by the Secretary of the Pension Board.

an examination by a physician, either selected or approved by the said Pension Board; and I further make this statement of my age, term of employment, wages, etc.

Date of Birth. Year....., Month....., Day.....

Place of Birth.....

Regularly employed and on payrolls of American Museum of Natural History since .....

Position.....

Present Salary.....

Name of Applicant.....

Residence.....

Date.....

Witness.....

APPLICATION FOR RETIREMENT

To the Pension Board of the

American Museum of Natural History:

I personally make this record of my service with the American Museum of Natural History and tender it as a basis for my being placed on the Pension Rolls of the said Museum:

Name in full.....

Address.....

Date and Place of Birth.....

Reasons for Retirement.....

.....

.....

.....

Length of Service.....

Remarks:

In this space give any information concerning your service of which the Pension Board should be advised.

.....

.....

.....

.....

.....

.....

.....

Signature of Applicant.

Date... .....

The above statement to the best of my knowledge and belief is correct and I recommend that pension be allowed.

.....

Signature of Employing Officer.

NATURE TRAILS

AN EXPERIMENT IN OUT-DOOR EDUCATION

FRANK E. LUTZ

CURATOR, DEPARTMENT OF INSECT LIFE

MISCELLANEOUS PUBLICATIONS NO. 21
OF
THE AMERICAN MUSEUM OF NATURAL HISTORY

NEW YORK
1926

A portion of our Nature Trail with its flickering lights and shadows; the music of the nearby brook; the woodsy odors; the "feel" of out-of-doors; and, along its sides, interesting hints concerning the joys of knowing at least a little about the things that are there.

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AMERICAN·MUSEUM·PRESS

NATURE TRAILS—AN EXPERIMENT IN OUT-DOOR EDUCATION

FRANK E. LUTZ
Curator, Department of Insect Life

Through the courtesy of Interstate Palisades Park and of Mr. W. A. Harriman, the entomological department of the American Museum of Natural History was granted the use of about forty acres of woodland and meadow in the Ramapo Mountains near Tuxedo, N. Y., about forty miles from New York City. There, aided by gifts from a number of friends, we established in 1925 a Station for the Study of Insects but we devoted our first season to an experiment in teaching about nature in general, with relatively little reference to insects and no research concerning them. It is this experiment, the "Nature Trail," that is discussed in the following pages.

I

The Underlying Idea

As a matter of fact we had two Nature Trails. They were simple paths through the woods, each about half a mile long and roughly circular. One we called the Training Trail and the other the Testing Trail. Some newspapers in trying to tell about our experiment called it an "out-door museum;" others, either influenced by the name of our Station or impressed by the insect part of our Training Trail, called it an "insect zoo." It was a little of each and yet neither. The underlying idea, the spirit of the Training Trail, was expressed by a sign at its entrance as follows:

> A friend somewhat versed in Natural History is taking a walk with you and calling your attention to interesting things.

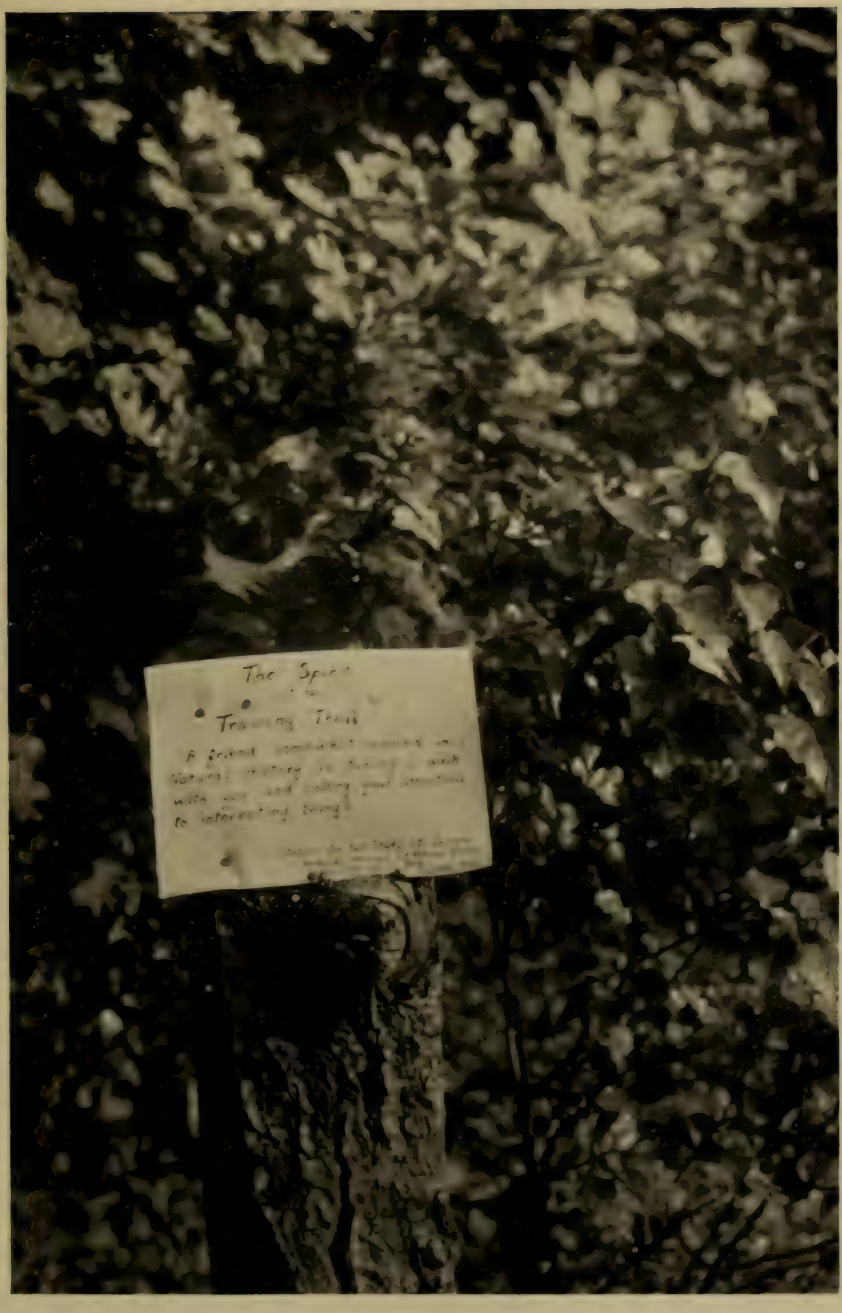
A "museum" has come to mean (to me, at least) a massive building to which things are brought and in which they are stored. It is "bringing the mountain to Mahomet" and, in spite of painted background and wax accessories, the mountain when displayed therein seems out of place. In our Nature Trail Mahomet went to the "mountain" and saw it alive and in its proper place. There one could not only see what a thing looked like but one could touch, smell, taste, or listen to it as well. Our experiment was not an "insect zoo" because a zoological garden displays animals far from their natural home, and furthermore, although we ourselves were primarily interested in insects, we admitted

that there are other things in nature and we actually gave more attention to these other things than we did to insects.

An "outdoor museum" is the oldest type, for the first "museums" —places dedicated to the Muses—were pleasant groves where the interested walked and talked. When time permitted and our visitors so desired, we were glad to walk along the Trails with them but the "friend" of our sign talked by means of small labels that called attention to the interesting things along the way.

The entrance to our grounds from the Bear Mountain road and the sign that said "Visitors Welcome."

The Training Trail had several features that are not usually present in botanical and zoological gardens. For one thing, the labels were more "chatty" than many scientific institutions think is compatible with dignity. Then, although few of the visitors realized it, the labels were so written that a given subject was opened simply, became more complex, and was closed by a short summing-up or by a few questions. Such an educational method was possible because the visitors (at least on their first visit) went along the Trail in the "right" direction and they went in the right direction because the start of the Trail was very evident, but the end, a few feet from the start, was arranged so as to be hidden by trees. Experience had taught the need of some such device



The "why" and the "what" of the Training Trail.

if a definite continuity was to be kept in our story. In the Insect Life Hall of the American Museum, where we numbered the exhibits so that the visitors would look at them in a proper sequence, most visitors totally disregard these numbers and the thread of our discourse becomes badly tangled.

Returning for a moment to the labels, not only were they chatty and written in a language that ordinary people could understand, a language that was sometimes almost colloquial, but here and there we had "asides" having nothing very directly to do with natural history. For example, there was a quotation from Burrough's on "walking" and, where the Trail first met the babbling Wild Cat Brook, we had the following from Stevenson.

> There's no music like a little river's. It plays the same tune (and that's the favourite) over and over again, and yet does not weary of it like men fiddlers. It takes the mind out of doors; and though we should be grateful for good houses, there is, after all, no house like God's out-of-doors. And lastly, sir, it quiets a man down like saying his prayers.

We did not tell our visitors to keep quiet—in fact we wanted them to enjoy themselves, just as a radio advertiser wants his audiences to enjoy themselves—but that quotation was appropriate in any case and, if ever so little it put a visitor in a more reverential and attentive mood toward nature, it was well worth while.

In fact, some of our labels were deliberately intended to put our visitors in a good humor. For example, at the place where we were showing centipedes we asked: "Have you heard the following bit of good psychology?"

> A centipede was happy quite until a toad in fun
> Said: "Pray, tell me. Which leg moves after which?"
> This raised her doubt to such a pitch
> She fell excited in the ditch
> Not knowing how to run.

With that thing from the Greek,

> Happy are cicadas' lives
> For they all have voiceless wives,

put at our "Insect Orchestra" we not only rarely failed to get a laugh but we clinched in peoples' memories the fact that only male insects produce sounds that we ordinarily hear.

If you were a "friend taking a walk and calling attention to interesting things," you would not deliver a pedantic lecture; neither would you adopt the style of a "barker" on a sight-seeing car. You would be

natural and, though expecting and getting attention, you would have your little jokes and make yourself generally agreeable. That is what the "friend" on our Nature Trails tried to do.

II

The Training Trail

Our Training Trail had four main sections and, for convenience in referring to them, each section was given a letter.

The first, or A, section, while somewhat general, was chiefly concerned with botany. A label told the visitor that on it would be pointed out

Sugar and Red Maples
Our Two Kinds of Hornbeam
The Two Great Groups of Oaks
Witch-hazel and True Hazels
True Solomon's Seal and False
The Five Kinds of Hickory
Butternut and Walnut
Blueberries and Huckleberries
How to Recognize an Ash Tree
Various Mushrooms.

The second, or M, section was devoted to "moisture-loving" things like ferns, aquatic animals (including insects as animals, though that is a difficult idea for many people), and so on.

Leaving the M section, the visitors were told that

Along the N Section There Are
Voiceless Wives.
Insects that Seem to Pray but Really Prey.
Wasps that Make Trees Work for Them.
A Viceroy that Mimics a Monarch.
A "Tiger" Lying in Wait
And Other Interesting Things.

The N section dealt with entomology.

The final, or H, section asked "How much have you learned?" It summed up the chief points of the other three. Tags were used in pairs. On the tag that covered its mate was a question and, since this was not the Testing Trail but a part of the Training Trail, the answer to that question was given on the covered tag.

Some of our visitors—not many, but a few—noted that the letters for these sections taken in order were A. M. N. H., the initials of the American Museum of Natural History. Those that did not notice it

missed it and no harm was done; those that did notice it were pleased at their acuteness and good was done, for "we aim to please" and "a satisfied customer is our best asset" are as true in "selling" natural history as they are in selling soap.

A typical portion of the Training Trail at the end of the season. Notice how narrow it is.

III

What about vandalism? We opened up a pleasant walk, leading it past interesting and beautiful things. Out on the automobile highway we put a large sign telling what we were doing and saying "Visitors Welcome." The visitors came and they were largely city boys and girls out for a holiday. We had no policemen or human guards. What was that trail like after it had been tramped by thousands of such feet? Well, at the end of the season that trail, where it was a trail and not originally a woods road, was in no place more than eighteen inches wide.

No Vandalism

I know of only one case of picking flowers along the Trails during the whole season and that was a grown woman who picked a cardinal

flower and was reprimanded by her small boy for doing so. I was working in the bushes out of sight and decided that the boy had left nothing for me to say even had I wished to remark. People did take flowers, whole arm-loads of them, from other parts of our grounds but they were people who had not been on the Trails, people to whom the opposite idea—the idea of conservation—had not made a sufficient appeal.

There was a spring along the Trail and two places where people were invited to eat their lunches. We had no janitor for our grounds and did not need one. As a matter of fact, we did not even have containers for paper and lunch-garbage, although we should have had them in order to accommodate our public. Still, only one lunch-party that had been along the Trails left unpleasant evidences of its visit. Occasionally we picked up a piece of paper but it almost seemed as though it had been dropped by accident rather than either through intention or even plain thoughtlessness.

These things surprised me as much as my account of them is probably surprising you; and I can not explain them. I cannot think that we were entertaining only angels. Furthermore, there was a noticeable difference between the actions of those who were going around the Trails and those who, not knowing the Trails were there or not caring, had just come on our grounds as they would on any other part of the Park. To be sure, a large percentage of those who visited the Trails were children and campers. That may have had something to do with it or there may have been something about the Trails themselves that brought about this much-to-be-desired result.

What we called among ourselves "police tags" were not really such; they were still the "friend." The following are samples.

Help to keep this Trail narrow. Go single file and keep on the path.

Why kill moss by pulling it up?

A Good Woodsman keeps to the Trail. A Good Scout does not spoil plants others will want to see.

Are you stepping on a plant?

Making this Trail for you has been hard work for us. You can help by not stepping on plants.

If you see people doing what they ought not to do, please speak to them about it for us.

At one plant with a fine seed-capsule was a tag reading

A moccasin flower's children (its seeds) are here safe and sound. See the plant a little farther along the Trail.

and there, where there was nothing but leaves, was a tag that said

LOST.—A plant's children (its seeds) when somebody picked a flower.

In spite of the complete absence of plain "don't" and the fact that plain "do" was rare, some thought we were harsh when we referred to the destruction of "ground pine" and other wild evergreens "to make a Christian holiday" or when, going along the trail, they saw a tag asking in relatively large letters "Are You a Criminal?" The next tag (both being hung on the same laurel bush) declared that

Laurel is being rapidly destroyed by criminals who break it for a few hour's selfish enjoyment of its flowers.

So much for the taking of things. As for the leaving of others, we noted that

Paper and garbage do not improve the landscape.
What you leave we must pick up

and so on. We stuck a stick through one piece of paper which I happen to know had been there from the year before, pinning it to the ground and bearing a tag with the remark

Somebody was careless. Were you?

The spring worried us a little and we decided to be somewhat forceful there. So, at one time or another the "friend" said

It is far more sanitary to use your own cup.

Treat Nature's water-pitcher as you would Man's if you were a guest at a public dinner.

and similar advice. Once, when there was a tag placed close to the water and asking

Would you put your mouth in my soup? No,

I happened to see a scout master, who was going around with some boys, flop down full-length on the ground plainly showing them how a real he-man would drink from a spring. The tag was then right in front of his eyes and, though he suddenly looked quite sheepish, he did not follow his original intention of drinking as a sheep does.

Well. I do not know why our visitors had such good manners on our Trails in 1925 and we can scarcely hope that it will ever be entirely thus but—still—who knows? Perhaps if you "jolly" the public instead of ordering it about, if you explain instead of dictate, if you ask people to help and to be one with you in protecting nature, they may do it. It is worth trying at any rate, especially as the other way clearly does not work in this land of the free.

A bridge built for us by Boy Scouts from Camp Kanohvet. It carried the Training Trail across Wild Cat Brook.

IV

Labels and Landscape

Reference was made above to putting tags on a laurel bush. Do labels "spoil the landscape" and, if so, are they objectionable? Evidently there is a difference of opinion on these points. This winter a club of Evander Childs High School teachers secured permission from Dr. N. L. Britton to put a Nature Trail in the N. Y. Botanical Gardens and they did so. Another organization, I was told, approached another botanical garden for the same purpose but was refused because that garden permitted no labels of any sort. Personally, I am ignorant of any better purpose to which a living tree can be put than to educate people about trees.

As to natural landscapes in areas that are not set aside for some mysterious purpose higher than education, I think that neat labels are not objectionable except to the chronic objector. In the first place, even the most vigorous worker will label only a small part of it. In the second place, there are many people (and among them are those whose opinion I value most highly) who thought that our labels did not "spoil the landscape" on our grounds, although I admit that in places the Trail suggested trees decorated for Christmas.

Some even thought that our labels were too inconspicuous, fearing that visitors would overlook many or would not take the trouble to read the rather fine print on those that they did see. All of which showed that we were somewhere on middle ground and, so, probably about where we ought to be.

For the most part, we used linen tags for labels after experimenting with other methods, as will be told later. These tags were about an inch and a half wide and two or three inches long, with an eyelet at one end. They were usually fastened with string—always with string when fastened to a living plant—and, of the approximately two thousand labels and signs that we put out in 1925, not more than two or three were tacked to trees. In those exceptional cases relatively small tacks were used on trees with relatively thick bark. I think that nature suffered little from our labels.

V

Advantages of Short Labels

It will be noted that most of our labels were small. Even if they had been larger, we would not have put more words on each. Usually none but the exceptional person, the sort of person that we do not need to interest because he is already interested, will read a long label. If you have much to say about something, say it on the continued story plan. The most blasé visitor will read a short, snappy label. In fact, if it is short enough and clear enough he will get it at a glance without really intending to read it.

Of course, we should not entirely disregard that exceptional person who is willing to read a long label. Perhaps he is the sort that gets ideas better when they are presented all at once. For that reason we had here and there long labels in which scattered facts that had been told separately were brought together. Furthermore, since such long labels were few, even the blasé individual was apt to think that perhaps they were especially important and, so, worth a moment's attention.

There were cases where a fairly long story had to be told all at once or not at all. In some of those cases we resorted to tricks, believing that the end justified the means and probably unconsciously taking a tip from the "columnists." For example, in keeping our promise to show "wasps that make trees work for them" we put at a place where there was an "oak apple" growing alongside of the Trail a horizontal string and on it we hung seven tags side by side. It was the only place on the Trail where such a thing was done and, as was intended, attracted attention. Most people naturally read the left-hand label first and, seeing numbered "chapters," few stopped until they had read the full "Story of the Oak Apple." As we had it, it was as follows:

The Story of the Oak Apple

I.—A small wasp laid an egg in a very young, not yet fully formed oak leaf.

II.—That leaf, instead of growing into an ordinary leaf, became the curious and complicated "oak apple" that you see here.

III.—The young wasp that hatched from the egg lived in the center of the "oak apple" and fed there.

IV.—Why did the oak leaf become an oak apple?

V.—The change was good for the young wasp but how did it or its mother force the oak to do it? We do not know.

VI.—What advantage did the oak gain? None that we know. We still have much to learn about even common things in nature.

To be sure, much more could be said about oak apples but that was probably enough for the first lesson, and the most important part of the

lesson is that even scientists still have much to learn about nature; much that is fascinating and may be important. I really would like to know what happens in the formation of galls such as "oak apples" and whether it has any similarity to the unknown cause of the formation of human tumors. Perhaps the Station for the Study of Insects may be able sometime to study this.

Another example of a divided label was at an old ant-nest. Early on the Trail there was an active colony of the Alleghany Mound-building Ant. Attention was first called to it by an open box hung in a nearby bush and labeled an "ant feeding station." In that box we kept sugar, dead insects, and other delicacies. The ants were large enough to be easily seen and hungry enough to be always present, making a rather good show. At the nest it was explained that the ants make the large mound and keep it clear of grass so that it will catch the heat of the sun and act as an incubator of young ants. It was also noted that farther along the Trail a different condition of affairs would be shown. The place where this promise was kept was really so much farther along the Trail that some may have given it up, if they remembered it. But, whether they remembered it or not, they finally came to a place where the Trail swung a half-circle around a mound about two feet in diameter. We drove a tall but thin stake there, partly to suggest not stepping on the mound but also to hold these four tags one above another:

A DEAD CITY. Deserted by Its Founders

This city was started about 30 years ago by a queen ant, *Formica exsectoides*, the Mound Builder.

The workers heaped up sticks and pebbles in what was then an open spot to catch the sun's rays and keep the young ants warm.

Then plants grew up and shaded the mound; moss covered it; and the huge population of this once busy colony died.

How did we know that it was thirty years ago? How did we know that the spot was then an open one? We did not tell. Those who could not guess were impressed with the fact that there was still something for them to learn; and that was good. Those who looked around and noted that none of the trees were more than thirty years old had part of the explanation and were much pleased with themselves. That also was good.

Do not tell too much. If you do, you will get very little across, and but little of what does go will be remembered. Furthermore, you risk living the impression that there is nothing more to be known. If possible, get people to feeling that they would like to know more. Also,

frankly confess that even you do not know it all. That will establish a common bond of both ignorance and desire to find out. People like to know about mysteries and to solve puzzles; it interests them, and that makes it worth whole: if they become interested enough in the puzzles of nature to engage in research themselves or to help support the researchs of others, science will gain an additional benefit.

VI

Scientific vs. Common Names

The scientific name of an ant was mentioned, and this suggests another problem. Shall we use scientific names? That question receives a decided "No. Never in popular work," from some and an equally decided "Yes. Nothing but." from others.

Several days ago I gave an hour's talk about insects to an audience of school teachers. At the end I called their attention to the fact that I had not used a single scientific name in the entire hour. They seemed delighted.

In the introduction to a book on insects I told about an experience at the American Museum when

> We were once severely criticized by an excitable visiting school-marm because we had labeled a number of exhibition specimens with their scientific names but had neglected to give English names to them. I had been trying, for some time, an interesting expermient on several children with whom I had been rather intimately associated (they were my own). The first move was to tell one of them that the name of a certain burly bee she saw in the garden was *Bombus*. About a week later there were near-tears because a neighbor insisted that it was a Bumble-bee. Matters were smoothed over by explaining that *Bombus* was the real name for such bees and Bumble-bee was a nickname. There are thousands of kinds of native-born, United States insects which have been really-named but not nicknamed. I have made an effort in this book to record the real names correctly and have given the nicknames when I knew them; when I did not, I usually have left you the pleasure of inventing new ones.

That is what we did on our Trails too. Incidentally, some of my fellow entomologists have dug up an older scientific name than *Bombus* for bumble-bees and they say the "real" name is really *Bremus*, but in America the nickname is still Bumble-bee and will be to our children's children. On the other hand, it is Humble-bee in England, and so there you are.

Miss Edith M. Patch, who has written very successfully for children about insects, will probably not mind if I quote from one of her letters an additional idea on this subject:

As for the name, I do not find that children object to a long, strange name. I think most children find both the length and the strangeness somewhat fascinating. Publishers, teachers, and librarians who "pass" on diction with reference to "grade," however, object in no uncertain tones.

I guess that common sense should be our guide in this matter and, if one gives both kinds of names, the scientific one comes to be associated in peoples' minds with the common one. The common name becomes a link between what they already know and what we would like to teach them.

The garden enclosed by woods through which the Trails ran and backed by what each one of us individually called My Mountain.

VII

Selecting Topics and Presenting Few

The suggestion made above about not telling the people so much that they remember but little and have no appetite for more referred to telling too much about any one subject. I think that the same objections apply to presenting a great many subjects at one time.

Our Nature Trails in the Harriman State Park section of the Interstate Palisades Park were laid out so as to pass the most interesting things that we found there but we

made no effort to lead it to everything in even that limited area. There was enough as it was—more than enough.

To be sure, we did plant a garden in order to show the injurious and beneficial insects of a garden but to reach this garden the visitors took what was said on a sign to be the "garden detour." We did not encourage them to take the detour and, in fact, toward the end of the season we removed the "detour" sign so that any one who went there did so on their own responsibility and initiative. This was not because the garden was neither interesting nor instructive but because it added so many subjects to those treated on the wild part of the Trail that we had too much. The garden was really both interesting and instructive. I felt that the days of hard manual labor that I and others spent in the hot sun planting and tending it were repaid by having one bright little chap open his eyes in wonder at learning that potatoes did not grow "on bushes" above the ground "like other things."

Then, too, we had an exhibit of household insects that did not really belong on a Nature Trail out in the woods. By putting that exhibit in a tent, we tried to give our visitors the feeling that it was not a part of out-doors without insulting their intelligence by telling them so. The tent served several other purposes also. In the first place, it could be seen by people coming on the grounds and they naturally went to it. In doing so they walked past the trees that hid the end of the Training Trail and were in position to start at the beginning of it, thus going around the right way and permitting us to arrange their course of instruction in a regular sequence.

In the second place, it housed the desk of a docent who was there to answer questions, to act as instructor for groups that wished more instruction than our labels gave, and to score the papers of those who took the Testing Trail.

Furthermore, I suppose the exhibit of household insects, like the "common names" of species, was to the visitors "a link between what they already know and what we would like to teach them" about insects, although it was surprising how many saw there live bed-bugs "for the first time." Our thanks are due to Sutherland's "Book of Bugs" for a quotation that we used to help take the curse off of at least one exhibit that might otherwise have been entirely disgusting to some:

> If the test of nobility is antiquity of family, then the cockroach that hides behind the kitchen sink is the true aristocrat. . . . Man himself is but a creature of the last twenty minutes or so compared with the cockroach, for, from its crevice by the kitchen sink, it can point its antennae to the coal in the hod and say: "When that was being made *my* family was already well established."

This rather amused many and definitely impressed them with the antiquity of insects.

But, to return to the matter of picking out just a few subjects for attention and being careful not to have too many, we did not attempt even to name every sort of thing that grew along the Trail and we did not merely name anything. Nothing is to me more barren than a mere name. This seems so important that I will discuss it a little later.

There were fourteen different kinds of ferns that grew near the spring in the M section. This was such a large proportion of all the kinds to be found in the Park that we labelled them all but we also gave the following advice.

Fourteen kinds of ferns are growing naturally within 100 yards of this spot and are shown here.

If you do not have time to learn 14 kinds of ferns, we suggest that you know at least four, say:

Christmas
Maidenhair
Sensitive
and Royal.

At first we picked out things that we thought worthy of attention and that were easy for us to treat. With all out-of-doors to choose from, it seemed good business to pick things that were easy for us, if they were also worthy of attention. Other things being equal, a matter that a naturalist must spend much trouble to look up is probably a matter that can be omitted from elementary education in natural history without much loss.

Having made the first selection and written on the labels the "friend's" remarks, we made note of all of the questions that we were asked and immediately—usually, at least, before the end of that day—had the label "friend" primed to tell the answer to those questions without being asked. Possibly, it might not occur to other visitors to want the answer to these particular questions but there was a good chance that what interested one person enough to lead him to ask the question would interest another enough to want the answer.

I hope that I may be forgiven for another thing that I did and, had it not been so helpful to us, I would not tell. As has been said before, the Trails were roughly circular. Frequently nature councillors would come with groups from camps in the Park and usually even individuals had people along to whom they talked. Inside of the circles formed by the Trails there were all sorts of cross-paths known only to us. Finally,

voices carry far in the woods and a man moving carefully can be seen through bushes only with difficulty. There you have the plain facts and you can guess the horrid one that I prowled around inside of the circles listening to the remarks made by our visitors and noting the mistakes made by even nature councillors. Every mistake that I overheard a person make called for a statement to the contrary on the Trail. I do not mean that I rushed out and told them that they were wrong. What I did was to take a blank tag out of my bag, write a label, put it on the Trail after the party had passed, and then take an inside short-cut to a place where I could listen and learn some more. I learned a lot, too.

So the season passed, taking down things that did not seem to serve their function of interesting, and putting up things which would both interest and educate, but always striving not to have so much that the average visitor would be confused or get tired.

VIII

Teaching More Than Names

About that "nothing is more barren to me than a mere name." I am a museum curator, and museum men are supposed by some to spend their lives collecting and naming things. If that were my only work in connection with the museum, I would resign and do something that interests me more. I admit the necessity of having names for everything and the desirability of being able to apply them correctly and without hesitation, but, as an end in itself, it seems to me futile. Perhaps I have inherited what may have been Adam's reaction to the work he was given to do in the Garden of Eden. Perhaps my reaction arises from the fact that I do such work poorly. Whatever the cause, I do not get much "kick" out of a label on an exhibit of either an animal or a plant when that label tells me no more than just a name.

Possibly this personal prejudice has something to do with my objection to the stressing of making named collections of things as a prime prerequisite to the awards of various kinds of merit badges to boys and girls. I would a great deal rather have the children watch a doodle-bug and be able to tell what it does than to have them collect the doodle-bug and then get somebody to name it for them—twenty-five kinds of doodle-bugs for a merit badge.

I selected doodle-bug as an illustration knowing full well that if a child talked to me about a doodle-bug I would not know what he meant unless he described it and its actions, for "doodle-bug" is a name that

means different things to different people and in different parts of the country. That, of course, is an argument in favor of working to get correct names, especially definite, scientific ones. But my point here is that mere naming does not seem to me to be the right approach to people whom we wish to interest in natural history.

We are all somewhat childish and Helen's Babies were real children when they begged their uncle to open his watch so that they might "see the wheels go 'round." They did not ask the names of the wheels; it was action that they wanted. I admit that a child's first question is apt to be "What is that?" but I am equally certain that he or she is going to be much more interested in what "that" is doing, if anything; in how it got there and what will become of it; in how it differs from other things; in whether it will hurt one or whether it is good for something; and so on.

After all of this, the reader has a perfect right to ask for samples of what I mean by labels more interesting then mere names. While such a request is quite fair it is rather embarrassing. However, I will meet it by quoting some that were most difficult for us, knowing very little about botany. Some day some botanical Fabre will make plants really live for us; it is badly needed. As it is and we being chiefly entomologists, the botanical wheels whose movements appealed most to us were those that meshed with entomological ones. Furthermore, it seemd to us important to show that all nature is interlinked. So, one of our first labels on the Training Trail (and a long one) was

Old Maids Are the Support of the British Empire

"Old maids keep cats. Cats destroy field-mice, which prey upon bumble-bees' nests. Bumble-bees insure seeds to red clover. Red clover makes good beef. And good beef makes big, strong men, who extend and keep up the British Empire.—Q. E. D."

This label was put at a clump of red clover. Nature supplied the bumble-bees and the visitors furnished examples of some of the other things.

In connection with the witch-hazel we showed how it may be distinguished from other shrubs; pointed out the large cone-shaped galls which are so often to be found on its leaves and that these galls were made by the plant in response to some unknown impulse given to it by a particular kind of plant-louse; mentioned the use of witch-hazel in medicine; and told about the superstitious use of twigs from European (occasionally American) witch-hazel as divining rods. Of course, all of this was not on a single label and some of the points were made

The mark which the now dead "climbing bittersweet" left on the trunk of a hornbeam.

several times in differing language and in various connections. Thus, the asymetrical leaf-base of witch-hazel was referred to when we mentioned other leaves having an asymetrical base.

A good illustration of how we tried to hammer in by reiteration some particular point got to be quite a joke at the Station. In my behind-the-bush eaves-dropping I discovered that nearly every nature councillor in the Park was teaching the youngsters that American Hornbeam is Hop Hornbeam. Now, one may not care much for names and still get rather excited over wrong ones, and we certainly did go after that wide-spread error. Samples follow:

This is an American Hornbeam. It has smooth bark. Hop Hornbeam has flaky or scaly bark.

This is American Hornbeam. It is sometimes called Blue Beech, but that is not good, as it is not a beech. It belongs to the Birch Family.

The Birch Family (Betulaceæ) includes Birches, Hornbeams, True Hazels, and Alders.

This tree is American Hornbeam.

This is American Hornbeam. It is not the Hop Hornbeam. The latter has scaly bark and is often called Ironwood.

This is American Hornbeam. How does it differ from Hop Hornbeam?

Hop Hornbeam or Ironwood. Notice the rough bark.

Why is this not Hop Hornbeam? Answer.—It has smooth bark. It is American Hornbeam.

This is American Hornbeam. To what Family does it belong?

Maybe we over-did it but we tried to make certain that it was at least done.

In connection with these hornbeams, a place where a now dead but formerly tightly twining "climbing bitter-sweet" had left a deep spiral indentation in one of these miscalled "ironwoods" interested many.

Perhaps one more illustration of how we tried to get people to realize that plants are really alive and more than just pretty things with names will be enough. A scrawny little Juniper in the deep woods was labelled

This Juniper is "out of place." Junipers usually grow in the open, and you notice that this one is not doing well. However, it got a start and is trying hard.

IX

"Tactile Education"

Perhaps because we knew more about them, insects—live insects—seemed the easiest to make interesting and with them we tried an experiment in tactile education. "Visual education" has come to be quite the thing, but this was tactile education.

You know how, when you see something new or interesting, you like to put your hand on it. I have even seen people who were looking

at a building walk up and touch its sides. Some parents and teachers so often say to a child "Don't touch" that the saying of it gets to be almost mechanical. The child is merely using a natural and efficient method of learning about things. Watch yourself and note how often you pick up an object you are looking at although you could get an equally good visual impression of it where it was. Our experiment was to see if the public could be trusted to handle exhibits, so we had no "Hands Off" signs.

We did not encourage visitors in every instance to touch the actual insects we were exhibiting, although they could do so if they wished, but we did suggest that they pick up the containers or that they lift the cover in order to get a better view, merely requesting that things be replaced carefully. Sometimes we went the limit, as when we asked that certain beetles be picked out of their cage and held close to the ear so that their faint squeaking might be heard.

In the household-insect tent there was a bottle in which a large number of red eyed fruit-flies (*Drosophila*) were breeding. The label "friend" said:

> Note, by carefully turning the bottle, that these flies tend to go toward the side that is in the brightest light.

I think that the psychological effect on the visitors of doing this—and most of the visitors did it—was far more valuable than the little they learned about positive phototropism but both advantages were there.

Just beyond was another thing that gave the visitor something that he could do with his hands. It was labeled "Can you Recognize Your Friends from a Distance?" or some such thing (I have forgotten the exact wording) and was a horizontal dial with a pivoted arrow mounted on it—the same device that is used in National Parks to point out mountains. The swinging arrow pointed out trees, and labels on the board told what differential characters could be used at long range.

When exhibiting a creature that would be happier in the dark, we covered it, partly to make it happy, partly to suggest that it normally lives under cover, but partly to give the visitors an excuse to make the manual effort of lifting the cover. At the American Museum we have a long series of railing cases filled with insects. It is what I call our Noah's Ark exhibit and most visitors pass right by without stopping to look. That is, they pass all but the two cases containing moths that would fade in strong light. These cases are fitted with hinged covers and visitors' finger-nails have worn hollows around the small knobs by which

the covers are lifted. Curiosity is said to have killed a cat and it can be made a powerful aid in education; also, most people like to be doing, not just looking on.

The most daring thing in this experiment of trusting the public to handle exhibits was to put out some celluloid enlarged models of the front wings of a male cricket showing the apparatus by which it chirps. Even if it had been necessary to replace these models from time to time with

The "Insect Orchestra." The object on the nearest cage is a tin box in which were kept celluloid models of a male cricket's front wings.

new ones it would have been worth while, charging the cost to the normal cost of education, but it was not. The models were much used but not at all abused.

Does not this experience, combined with the lack of general vandalism previously mentioned, raise an interesting question concerning trusting the public? And what is the answer?

"Keep off the Grass" signs are of little avail but I know of a man who once put out a sign "I am trying to grow grass here. Please help me." And at another time "Please keep off of where grass ought to

be." He got favorable response in each case. In the first he gave a a clear explanation for a reasonable appeal; in the second he called humor to his aid.

It may not always work out this way. Today I was discussing the matter with an experienced master of a boys' school who said that, if people are suddenly trusted to a much greater extent than they expect, they will not understand it and, misunderstanding, will not accept the trust; but, if they are trusted just a little more than they expect, they will usually appreciate it and show their appreciation.

It is worth trying and, as I said before, even if damage is done by handling, I believe that the educational advantages gained by touching things is worth a considerable cost of replacement.

Although a museum man, trained in a museum that has acres of plate glass shutting visitors off from the things that the museum wants the visitors to understand fully, I do not like such obstructions. In many instances a janitor with a dust-brush would be cheaper than cases as a method of keeping dust off of specimens and the specimens would be no worse for an open method of installation.

Then, there are the labels. If I could, I would have each museum label arranged so that the visitors could hold it while reading it. Each visitor could then get it at just the right distance from his eyes; having taken it in his hands, the visitor would be likely to finish reading it before dropping it; and, perhaps not lastly but certainly worth while, the label would enter into his personal experience and would not be merely something shut up in a glass case. This can not always be done in a museum but it was a feature of our Nature Trails.

X

Personal Contact

Reference was made to the presence of a docent who was ready to conduct groups around the Trails and give instruction concerning points not covered by the labels. Sometimes this took on the aspect of a tour personally conducted by a "nature guide" and of formal class instruction.

If the labels are what they should be, they will tell enough and tell it in a way that is personal enough to make the presence of an actual person unnecessary. If unnecessary, then undesirable as a formal and evident part of the plan. It is undesirable simply because it is both formal and evident. Furthermore, it is like the plate glass of a museum case, something that separates a visitor, whether he be conscious of it or not, from the thing that he is looking at.

On the other hand, when possible, there should be people on the ground ready to answer questions and to supply the personal touch that even the best label can not furnish. This seems to be a contradiction of the former opinion but it is really not so, for the presence of these people need be neither formal nor evidently for the purpose of "selling goods."

Knowing that many of the visitors to our Nature Trails would be small boys, we had boys ranging in age from twelve to sixteen on our "staff." These boys learned a very great deal by the work they did and they thought that their main job was to make themselves generally useful with the mechanical chores along the Trails. They were interested in natural history but they were not selected because of their knowledge concerning it. What we wanted was to have there some real "boys' boys" when other boys came to visit us.

If the visiting boys saw that our fellows were nimby-namby weaklings they would judge us and everything that we had to show them accordingly. But if they saw a "real fellow" doing something—let us say moving a caterpillar to another branch—they stopped and took notice. If they made some sarcastic remark, they were apt to get back as good as they gave and that was a fair exchange pleasing to both sides. However, the conversation was more apt to be something like this:

"What'ja doing?"

"Moving this caterpillar to a branch with better leaves on it."

"What'ja doing that for?"

"So that it can get lots to eat, of course."

"Here's a good branch."

"Go on. That's oak and this caterpillar eats witch-hazel."

"Don't it eat nothing but witch-hazel?"

"Well. It will not eat oak."

And so on. Perhaps by this time more boys had come up to see what it was all about. Such "nature guiding," or "nature councilling," or docent service, or whatever you wish to call it gets beyond the middle-ear and retina.

For my own part, I rarely took parties on personally conducted trips around the Trail. I sometimes started out with them but then remembered something that I ought to do. "It will only take a few minutes and I will join you later," which I did when they had covered most of the Trail by themselves and in their own way. Usually in such cases questions had accumulated in their minds and these were asked one after another so that not only was time saved but there was a possibility of weaving the answers into a connected story.

For the most part, however, when I had time to be a docent I would take an inside path that would bring me out on the Trail just ahead of some visitors. They would then meet me strolling along; the "time of day would be passed"; and the conversation more or less

At the end of the Testing Trail. Scoring the boys' papers and chatting with them about their answers.

gradually worked around to a nature topic. While interest was still strong I would leave them and arrange to be accidentally met by some one else.

To say that our formal "nature guide" service was a total loss would be an overstatement but it did not seem to be very profitable. Informal service was much more useful in our experience; and one advantage of a properly labeled Trail is that it does not need even that.

XI

The Testing Trail

Several references have been made to the Testing Trail. This differed from the Training Trail in that the only labels were numbered tags bearing questions. Visitors who wished to do so could write out their answers and we would score their papers on the basis of 100 points for perfection. The questions concerned only facts covered in the Training Trail and were changed from time to time—especially just before contests. There were fifty of these questions at any one time.

The contests were between groups of campers and were most interesting. Usually five individuals formed a "team" and inter-camp contests were decided by the average score of each team. However, sometimes a single team would try to beat the current "high score" of all teams and sometimes an individual would try for the individual high score. Finally, a boy from the camp of the Association for the Improvement of the Condition of the Poor made 99½. Really, I suppose we might honestly have scored him 100 but, at any rate, his remained the high score of the season.

These people worked hard on the Training Trail before taking the Testing Trail. In contrast with an average score of about 80 for *teams* of city children, some of whom were getting their first taste of real outdoors but all of whom had worked on the Training Trial, was the individual high score of 94 made by adults depending on their general knowledge.

The following questions (with answers added) are typical of those used on our Testing Trail. When two or more questions concerned the same species not more than one of them was put on the same specimen.

What shrub is this?—Witch-hazel.

For what is this shrub used by man?—To make a liniment for sprains, etc.; also twigs of it are, or were, used by certain people as a supposed aid in the location of water or gold.

What are the cone-shaped structures on some of these leaves?—Witch-hazel Cone-galls. They are caused by a kind of plant louse.

When does this bush blossom and how long does it take its seeds to ripen?—Late autumn or early winter. About two years.

Are these leaves "simple" or "compound?"—(The answer differed according to where the question was placed. A similar question concerned opposite and alternate branching).

What kind of tree is this? If not sure, name two trees, either of which you think it might be.—Butternut or walnut. (It was really butternut but the distinction between the two is rather difficult for some. However, some guessed hickory and that, of course, was wrong.)

What is a general name for this tree and why do you say so?—Ash. It has opposite, compound leaves in which the leaflets do not all come from one point.

What are the small plants growing in this clump of moss and with what are they often confused? How do you tell the difference?—They are cinquefoil and each leaf has five parts. Strawberry looks like it but has only three parts to a leaf.

Does this belong to the Birch or to the Beech family? To the Birch family, although it is sometimes called "Blue Beech."

Is or is not this plant poisonous?—It is not. (This question was sometimes put on a non-poisonous sumac; sometimes on a young butternut; and sometimes on a trefoil that looked like poison ivy. It is somewhat of a "catch question.")

Is or is not this a chestnut? Why do you say so?—No. Because chestnut leaves have bristle-tipped "teeth." These leaves look like chestnut leaves but have no bristles; it is a chestnut oak.

What killed these trees?—A fungus, the Japanese chestnut blight.

What made the snake-like markings in these leaves?—The leaf-mining caterpillars of a small moth.

Does man use as food any part of this particular kind of tree?—No. (This was really a "catch question." It was put on a maple but on a red maple, not a sugar maple.)

What are the white objects on this caterpillar's back?—The cocoons of small insects that fed on the inside of the caterpillar.

What are these insects and why is it important that you should know?—Japanese leaf-beetles. (They were dead specimens in a bottle.) Very destructive and spreading in this directoin. They should be reported if seen alive.

Most of the questions were of the "what is it" type because the answers to such questions are usually either right or wrong. When the question calls for a discussion of something there may be a difference of opinion as to the proper score. Contests or games are splendid aids in teaching but, when using them with children, one must be very careful that the children do not get a notion of unfairness. A child's confidence is easily lost.

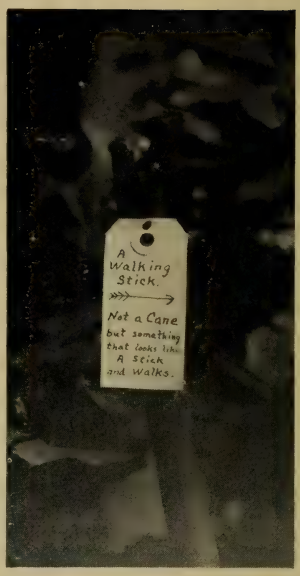
Even with the "what is it" type of question there is a chance to point out more interesting things about "it" when scoring the papers, for comments made to the visitor at that time will receive special attention because of the interest aroused by his personal endeavor.

XII

Mechanical Methods

A short description of some of the mechanical methods which we used on our Trails may help others who make similar trails, although ingenuity in using whatever is at hand is what counts most.

Labels must be weather-proof. We spent a great deal of time experimenting with celluloid. We dipped typewritten paper



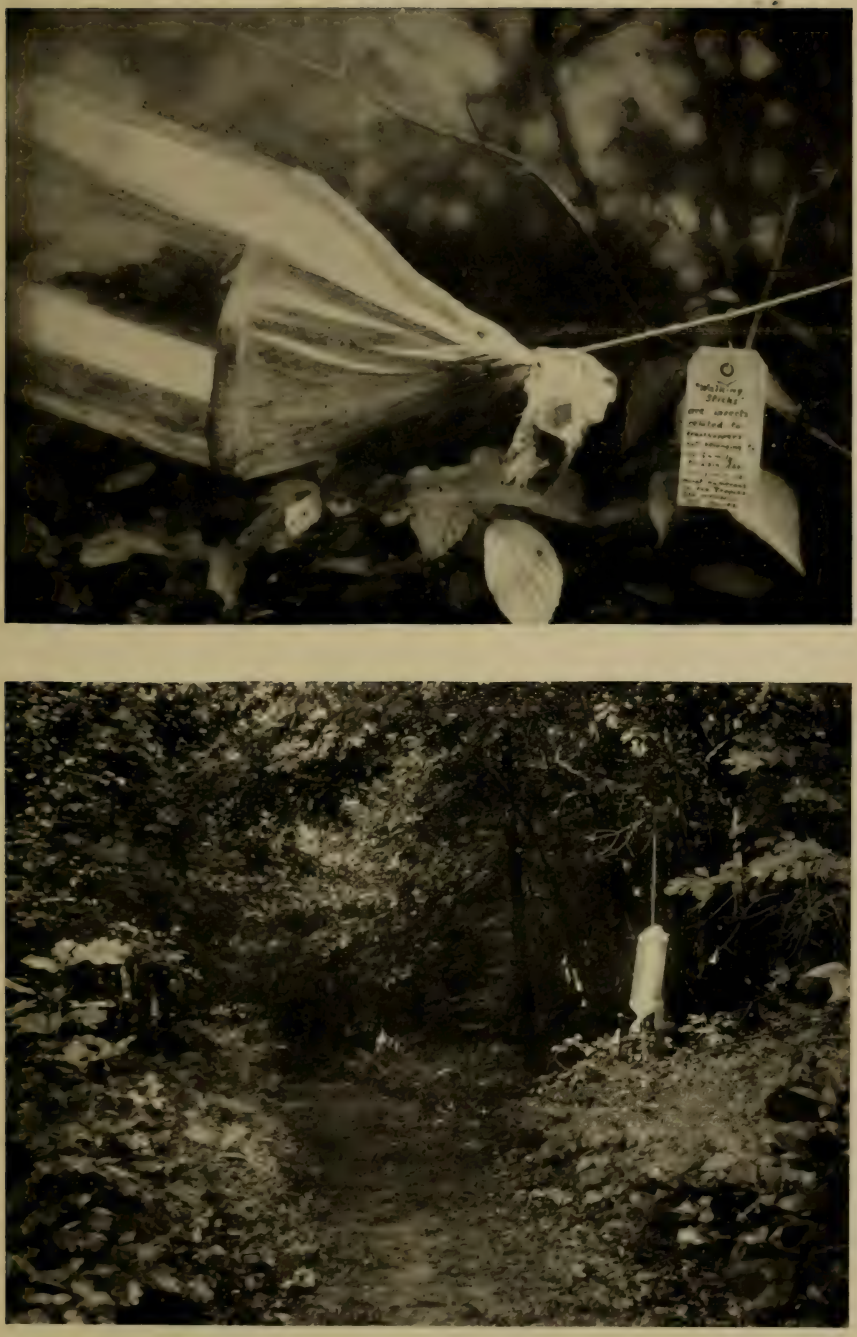
in a thin solution of celluloid in acetone and other solvents. This weather-proofs the paper and protects the typewriting but the paper curls badly. One day we did not have time to treat several typewritten labels before we had to put them out. It rained that night but, when we went the next morning to replace the labels which we supposed were ruined, we found them nice and fresh. Much toil and trouble—to say nothing of celluloid—had been wasted because we had not had sense enough to find out in the first place that our typewriting ink was waterproof.

The label method that we found most useful was to write (or print) with Higgin's waterproof ink on Dennison's linen tags. These tags are expensive when bought at retail but they are cheap in lots of a thousand or so. Such labels will stand numerous hard rains but they mildew during a long damp spell. Furthermore, if they are, as they should be, handled by visitors, ordinary dirt must be expected. Some of our linen labels lasted all season but, as we wanted our visitors to believe that we considered the exhibits worthy of good-looking labels, we renewed most of the tags every few weeks.

Furthermore, many things need new labels every few weeks at any rate if we are to have the labels tell timely things. Where yesterday we called attention to a bud there is now a flower and will soon be fruit. Of course, a label could be written that would cover all three and be good for all time but it would at no time have as great an appeal to a person as a label that seems to have been written for the special occasion of that particular person's visit.

We found that it was well to write our labels when and where we wanted to put them up. A certain freshness, spontaneity, and appropriateness came in this way. Desk-written labels are apt to be desky.

To be sure, there are many labels that are always timely. The trunk of a tree is flaky, or smooth, or what-not, winter and summer. For such things it might be well to have painted tin labels. We have not yet tried them but may do so. It has been suggested that tin painted one color might be used for things to be noted in summer and another



Along the N section, showing the use of celluloid cylinders for enclosing insects on their foood-plant.

color for winter characteristics. Personally, I fear getting things too complicated and formal.

We wanted to put some water-color drawings here and there to show, for example, what a caterpillar looked like before it turned into the pupa that the visitors were looking at. There are various ways of water-proofing such drawings but we found the following plan quite satisfactory. Two sheets of celluloid, each four by five inches (any size larger than the drawing will do but 4 × 5 was our standard), formed the front and back of a holder. These sheets were separated by and fastened to strips of wood that acted as the top and two sides of a frame. These strips were about an eight of an inch thick and three-eights to half an inch wide. "Liquid celluloid" (ordinary celluloid dissolved in acetone or amyl acetate) was used to fasten things together and to paint on the outside edge of the wood. Thus, the whole thing was rain-proof. The picture was slipped in from below and the opening there was closed by a fourth strip of wood that completed the frame. This fourth strip was held in place with a small thumb tack.

While this device was rain-proof, moist air could get in and the moisture condensed on the inside after sunset. This fogged the view until things warmed up the next day but did not seem to harm the drawings. One that was out all last season is still good enough to use another year. Certain colors, especially blue, fade in sunshine and this must be taken into account, especially when showing pictures of leaves. Incidentally, our typewriter ink, although water-proof, gradually faded.

Drawings made with water-proof ink are very helpful. An example of this was where we contrasted the forms of the indentations in the margins of the leaves of red and sugar maples; another was a drawing to show what is meant by an asymmetrical leaf-base characteristic of certain trees and bushes. These drawings were made on ordinary library cards and needed no water-proofing. At the top was tacked a small, neat stick that served both to stiffen the card and to furnish a secure and convenient place for the attachment of the string by which the drawing was hung from a twig.

The most extensive use which we made of celluloid was in constructing cylinders in which we kept live insects and spiders. These cylinders were of various sizes, averaging about eighteen inches long and eight inches in diameter. The edges of the celluloid roll were held in place simply by sewing them together. A muslin "sleeve" was sewed on each end of a cylinder and tying a string around each sleeve closed the cage. One advantage of this device was that it could be slipped over the end of

a branch or over a whole plant and fastened there in order to enclose leaf-eating forms. One disadvantage of it was that condensation of moisture on the inside often obscured vision in the early morning until the temperature had arisen sufficiently to evaporate the moisture.

Another convenient device was a plaster box with a removable glass top. It has long been used by entomologists. In its simplest (and for most purposes quite satisfactory) form this was a plain plaster block about 5 × 6 inches on its sides and about two inches deep. There was a cavity in this block, the cavity being about 3½ × 4½ inches on its sides and about one inch deep. A cleaned 4 × 5 glass photographic negative fitted into a slight depression in the top of the block and closed the cage. We used this device chiefly for ground-inhabiting forms such as centipedes and running beetles. Set on the ground, the plaster absorbed about the right amount of moisture to suit these creatures.

Several of the changes made in this simple plaster box to suit special cases were the presence of a small cavity in which to put water for the purpose of keeping the block quite moist and the presence of a number of large cavities, each connected by small holes through the intervening plaster partitions. The latter change was particularly for keeping ants that need a dark brood-chamber and a light feeding chamber. The brood-chamber was covered, except when visitors were watching the ants, by a piece of pasteboard or thin wood. A label asked the visitors to replace the cover, and they did.

The device which raised the greatest stir in the Park among the camps that put in Nature Trails of their own was glass "butter-tubs" with plain glass covers. We got a gross of them at a New York 5-and-10-cent store but we must have bought out the market, for when the camps tried to get a supply they not only could not find any but the store asserted that it never had sold such a thing. These "tubs" made first-class small aquaria and were good for other things such as salamanders and snails. However, 5-and-10-cent store glass finger-bowls are about as satisfactory except that they have no covers.

XIII

Other Nature Trails

The development of Nature Trails by the nearby camps in Interstate Park was one of the most pleasing features of our first season and it was entirely unexpected. At the suggestion of Mr. Childs, Park naturalist for 1925, we opened the season by inviting the nature councillors and directors of these camps to a private showing of our experiment. We wished to persuade the camp authorities to send their children to our

A party of boys entering the A section of the Training Trail, and a busload of girls leaving for a return to their camp.

Trails but these good people did more than that. They went back and started Trails of their own.

No definite statistics are available but approximately twenty Trails were in active operation throughout the Park by the end of the season. If these averaged half a mile each, this meant that there were about ten miles of labeled, natural exhibits there. It also probably meant that more than twenty times more people were reached by these Trails than by ours.

More than that, those camps which encouraged their children to help make the Trails, instead of leaving this to paid councillors, did a wonderful work. What better instruction in nature could their children have had?

Can this be done elsewhere? Most certainly; and it is being done. Reference has already been made to the Evander Childs High School Nature Trail in the N. Y. Botanical Gardens. The Manhattan Girl Scouts have made a winter Trail on the Palisades. Word has just been received that Boy Scouts of Rochester are making one there, and so on.

If a many-times-multi-millionaire should offer to build a museum and fill it with not-to-be-surpassed exhibits of local fauna and flora for every community that would take the trouble to label the exhibits, what a philanthropist he would be! He has done it; go to it. The sky is its roof; the sun is its light; and absolutely natural exhibits are at your disposal.

Have you nothing better than a vacant town-lot? Fine! People were very much interested in the exhibit of weeds in our Station garden last year. We simply weeded other weeds away from the weeds to which we wished to call attention and then we told the most interesting things we knew about the weeds we were exhibiting. What about the crickets, the grasshoppers, the ants, the butterflies, and the other insects to be found in any vacant lot; what about the spiders, the slugs, the centipedes, the toads, the birds, and so on? Your benefactor may not have given you as large a museum as he has others but it is easy to make it interesting and decidedly instructive.

Fishing and hunting clubs, golf and tennis clubs, and vacation hotels have a wonderful opportunity of adding to the attractiveness of their grounds and at the same time of doing an additional worth-while thing by neat, chatty labels telling about the geology, topography, botany, and zoology of their grounds. Many of them may not have realized that they had those four things, and others, within their bounderies However, it is probable that each of such clubs and hotels has among its

people some one or more who can and would be glad to do the little work that is required to tell by means of labels the other people about rocks, plants, and animals of various kinds.

There are hundreds, perhaps thousands, of automobile tourist camps throughout the country. I have stopped overnight in several dozen of them myself, especially when driving from New York to Colorado and back. In them I have seen people from nearly every State and from Canada, all stopping overnight, to be gone the next day and to stop in another camp the next night. What an opportunity to teach natural history at no greater cost than labeling things in and about the camps. One of the most fascinating things on a long automobile trip is the change from one biological region to another and from one type of topography to another. Unfortunately, few have this fascination since no one has pointed it out and explained it to them. The philanthropist of several paragraphs before has provided and stocked these hundreds or thousands of "out-door museums." Henry Ford and others have brought it about that there are millions of visitors to these "museums." Who will do what little remains and label the exhibits? It might be done by individuals but it would be better if it could be done on a national scale so that the story in one camp would connect up with the stories in surrounding camps an average day's drive away.

National and State parks are particularly good fields for Nature Trails and the development of out-door education in such parks is being seriously considered and carried on by intelligent and efficient workers.

However,—and I have saved this point for the prominent final paragraph—the very best way of making a Nature Trail is, it seems to me, to have as many as possible of those whom you wish to teach help to make it. In addition to all of the other advantages of a Nature Trail, this method of making one especially educates those who help, gives them a personal interest in it, and makes each of them a radiating point of interest to others. Here is still another chance for Boy Scouts to "do a good turn," for Girl Scouts, Woodcraft Leagues, womens clubs, Rotary Clubs, public schools, private schools, churches—any organization at all.

Let us teach about nature where nature is.

Miss H. A. Gay

THIRTEENTH ANNUAL REPORT
OF THE
PENSION BOARD
OF
THE AMERICAN MUSEUM OF NATURAL HISTORY

FOR THE YEAR 1925

MISCELLANEOUS PUBLICATIONS OF
THE AMERICAN MUSEUM OF NATURAL HISTORY No. 22

NEW YORK
JANUARY 1, 1926

THIRTEENTH ANNUAL REPORT

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PENSION BOARD

OF

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For the Year 1925

Miscellaneous Publications of
The American Museum of Natural History No. 22

NEW YORK
JANUARY 1, 1926

OFFICERS AND MEMBERS OF THE PENSION BOARD

1925

Chairman
FELIX M. WARBURG

Vice-Chairman
RALPH W. TOWER

Treasurer
GEORGE F. BAKER, JR.

Secretary
GEORGE N. PINDAR

Trustee Members

F. TRUBEE DAVISON
WALTER B. JAMES
A. PERRY OSBORN
FELIX M. WARBURG

Employee Members

HARRY F. BEERS
GEORGE N. PINDAR
RALPH W. TOWER

Bursar
FREDERICK H. SMYTH

Counsel
LEWIS L. DELAFIELD

Consulting Actuary
S. HERBERT WOLFE

Medical Examiner
DANA W. ATCHLEY, M.D.

Service of Officers and Members of Pension Board

1913-1926

Anderton, Walter P.	Medical Examiner	1917–1918
Atchley, Dana W.	" "	1923–
Baker, Jr., Geo. F.	Treasurer	1922–
Beers, Harry F.	Member of Board	1913–
Davison, F. Trubee	" " "	1924–
Davison, Henry P.	Treasurer	1916–1921
Delafield, Lewis L.	Counsel	1913–
Hard, Anson W.	Member of Board	1913–1915
Iselin, Adrian	" " "	1913–1923
James Walter B.	" " "	1916-
Lanier, Charles	Treasurer	1913–1915
Mackenzie, Geo. M.	Medical Examiner	1916–1923
Osborn, A. Perry	Member of Board	1921–
Pindar, Geo. N.	" " " and Secretary	1913–
Pyne, Percy R.	" " "	1913–1920
Smyth, Fred. H.	Bursar	1913–
Tower, Ralph W.	Member of Board and Vice-Chairman	1913–
Warburg, Felix M.	" " " " Chairman	1913–
Wolfe, S. Herbert	Actuary	1913–

To the President and Trustees of The American Museum of Natural History and to the Subscribers to the Fund:

I have the pleasure to submit for your consideration the Thirteenth Annual Report of the operations of the Pension Fund and its financial statement for the fiscal year ending December 31, 1925.

THE progress of our Pension Fund for the past thirteen years may well be likened to that of a successful individual—it owes its success to having been able to overcome seemingly insurmountable difficulties and obstacles.

The origin and development of our Pension Plan are familiar facts to those who have long been connected with it as a Subscriber or an Administrator, but its personnel has such frequent changes that it is felt to be an opportune time to review its progress.

In 1910, Mr. Archer M. Huntington generously donated the sum of $1,000. as a nucleus of a fund for the establishment of a Pension System for the benefit of the employees of the Museum. It was not, however, until 1913 that a Committee, appointed by President Osborn, composed of Employees and Trustees, presented for adoption, as a part of our corporate laws, the first set of Rules and Regulations.

For several years prior to 1913, and continuing to the present time, the desirability of a Pension Plan for workers in all their classifications has been the subject of discussion among public and private corporations, and our own Corporation, recognizing its duty to employees of long service, was among the first of similar institutions to adopt a plan which would provide against want for its aged workers. Among the arguments presented by the Employees' to the Trustees' Committee were a number which it is felt still are effective, i.e. (1) A Pension System attracts to museum employment persons of superior character, ability and industry and retains them in the service as long as their efficiency continues. (2) It is a conscientious plan by which officials are relieved of the embarrassment of carrying superannuated employees who have proved their faithfulness and efficiency.

The Rules, then, as presented by the Employees' Committee to the Trustees, were the outgrowth and result of the patience, study and research of Messrs. H. F. Beers, J. B. Foulke, H. J. Langham, G. N. Pindar and F. H. Smyth, aided by Mr. Lewis L. Delafield, who freely gave the benefits of his legal knowledge to place in correct terminology the application of the Rules presented by those employees. In all of this work the Committee had the benefit of the actuarial advice of Mr. S. Herbert Wolfe.

It is interesting to note that the employees suggested and recommended that a joint contributory plan would be most desirable and the Trustees felt warranted in accepting their recommendations on this point after reading the arguments in favor of such a plan. In the main, the arguments presented were as follows: That a contributory system makes for independence on the part of the employee and prevents the separation of employees into classes. It was, of course, realized as time passed, that changed conditions and the operation of the Rules as drafted, would require alterations, and this has been done to the end that this year we have been operating under Rules that, with few exceptions, are felt to be as perfect in meeting our needs as any that could be formulated.

The pensioned employees will now receive more adequate annuities; the members of an employee's family are provided for in event of the disability or the death of their earning member. In general, we feel that an altogether equitable and effective Pension Plan is in operation. That the Plan is financially successful is best evidenced by the fact that from a $1,000 endowment fund, established by Mr. Huntington, there was available at the end of 1924, a total invested fund of $313,000, and this amount has been increased during the present year by $46,000 With the exception of the $1,000 first mentioned, the invested fund is composed entirely of the joint contributions of Employees and Corporation, together with the interest on sums previously invested. The details of the financial condition of the Fund are contained in the Treasurer's statement which is a part of this report.

The membership, which started with 230 employees in 1913, has now grown until it numbers 308 active subscribers, and there are being carried on the pension rolls nine former subscribing employees.

Your Pension Committee, from time to time, has called attention to the best means of securing health insurance. It has proposed and effected a system of physical examinations for entrants; it

has suggested periodical examinations for subscribers, and we have no hesitancy in reporting to you that these precautions have in great measure been productive of good results. It has been felt, in providing for these physical examinations, that the premature death of any subscriber or of any employee is not alone a direct loss to the immediate family or his associates, but it is an economic loss to the institution with which he has been connected and to the community at large. We, therefore, suggest that this elementary health insurance plan be extended, to the end that it be rendered more helpful to all.

In addition to reporting the general objects and workings of our Pension Fund, President Osborn has constituted a portion of your Committee with wide powers as a Welfare Board which, we have occasion to feel, has well proved the necessity for its creation and continued existence. In practice, it assists in securing medical treatment and hospital care for employees requiring it and has in other ways helped worthy employees. Through the generosity of interested friends of the Fund, hospital beds have frequently been placed at the disposal of employees who have had to undergo operations. In all this work the Committee has had the close cooperation of generous friends and, working quietly, has endeavored to perform effective service.

As a result of an inquiry regarding the annual cost of welfare work to the Museum, this seems an opportune time to offer a brief survey of the facts. At the present time the cost of this service to the Corporation through Pensions, Death Gratuities, Group Insurance and Welfare Work is less than three-fourths of one percent of our annual payroll. With a knowledge of the effectiveness with which the present Pension Plan is operating, the Trustees of the Corporation have recently been prompted heartily to endorse and agree that they and their successors will give full consideration to the obligations of the Fund and to the employees should need for such ever arise.

FELIX M. WARBURG,
Chairman.

New York, December 31, 1925.

STATEMENT OF MEMBERSHIP

1925

ACTIVE

Subscribing Employees, December 31, 1924		299
New Subscribers, January 1–December 31, 1925		39
		338
Resignations	27	
Deaths	3	30
Membership, December 31, 1925		308

RETIRED

Pensioned Employees, December 31, 1924	7	
Employees Pensioned during 1925	4	
	11	
Deaths during 1925	2	9
Total Membership December 31, 1925		317

STATEMENT OF PENSION ALLOWANCES

Name	Yearly Amount	Date of Retirement	Period of Payment
H. Ernestine Ripley	$464.00	Jan. 1, 1919	16 years
George A. Young	300.00	Feb. 1, 1919	15 years
*Adam Hermann	988.00	Dec. 31, 1919	Life
James Kenney	470.28	Sept. 1, 1922	18 years
A. E. Anderson	300.00	Jan. 1, 1923	20 years 9 mos.
**James McGovern	458.62	Sept. 1, 1923	17 years 3 mos.
George J. Beeth	590.04	Nov. 21, 1923	18 years 9 mos.
Brower Palmer	1,012.08	Jan. 1, 1925	23 years 3 mos.
Robert McAnuff	805.00	June 20, 1925	Life
Otto Block	510.00	Nov. 1, 1925	15 years
Edward J. Yarrow	1,104.00	Nov. 1, 1925	Life

*Deceased Sept. 22, 1925.
**Deceased Jan. 4, 1925.

Deceased

CHARLES COLE

Charles Cole was born in Carlisle, New York, April 6, 1860. He came to the Museum in 1895 as a member of the Department of Heating and Lighting. During a long term of service, his faithful attention to his duties was greatly appreciated. Early in 1925 he began to suffer severely from chronic mastoids which became so acute that he was forced to enter a hospital. While there he developed an abscess on the brain and passed away May 30, 1925, after a short period of intense suffering. It is always difficult to replace a faithful, efficient and trusted employee such as Mr. Cole, and his loss will be deeply felt.

HENRY R. DODD

Henry R. Dodd was born in Ireland, July 4, 1852. He became a Museum employee in 1912. In January last, as the result of an accident, he fractured his hip. It was thought that he would recover in a short time, but to the great shock of his friends, he died very suddenly on January 16, 1925. The loss of Mr. Dodd was very deeply felt by all the members of the Museum whom he daily welcomed with his kindly smile and cheery words. He was possessed of an unusually bright and happy disposition and his sudden passing has left a great void in the ranks of his co-workers.

Deceased

ADAM HERMANN

Adam Hermann was born in Germany on August 25, 1848. In his early manhood he was trained at Yale University in the preparation and preservation of fossil specimens and records. He came to the Museum when the Department of Vertebrate Palaeontology was in its beginning and lived to watch the growth of its exhibition work from a small corridor display to the development of three great halls. Other museums have adopted Mr. Hermann's methods and a number of preparators were trained under his direction.

On December 31, 1919, after twenty-seven years of service, Mr. Hermann retired, with the hearty good wishes, not only of the Department, but of the entire Museum. It was with sincere sorrow that we learned of his death on September 22, 1925.

JAMES McGOVERN

James McGovern was born in Ireland, August 13, 1853. He came to the Museum in 1906 and quickly made a place for himself by the faithful performance of his duties and by his cheerful spirit. He continued work at the Museum until September 1, 1923, when, by reason of advancing years, he felt it wisdom to retire. His death on February 4, 1925, was sincerely mourned by his associates.

Deceased

LOUIS R. SULLIVAN

Louis R. Sullivan was born at Houlton, Maine, on May 21, 1892. He was graduated from Bates College in 1914, and later worked as a graduate student in zoology at Brown University. From there he came to the Department of Anthropology at the Museum. In 1920 Dr. Sullivan was chosen to make an anthropological survey of the Polynesian Islands. He spent eighteen months on the Islands and later prepared a memoir on "Marquesan Somatology." When Dr. Sullivan returned to the Museum in 1921, his health had begun to fail, so he took up a temporary residence in Tucson, Arizona. While there he made studies of the Mexican and Indian school children, later tabulating the results for publication. During the epidemic of influenza he became a victim of the disease and his health was permanently impaired. In all phases of his work Dr. Sullivan showed conspicuous ability and fine judgment. He was recognized in the Museum as a "quiet fellow, sane, clear-eyed, not afraid of work, with scholarly mind and a lot of native ability." His untimely death has created a distinct loss to the Museum and to the field of anthropology. He passed away at Tucson on April 23, 1925.

FINANCIAL STATEMENT 1925

Invested Funds

	Par Value	Income	Book Value
Endowment Fund.....	$1,258.37	$50.34	$1,140.39
Investment Fund.....	357,741.63	15,392.16	334,086.49
	$359,000.00	$15,442.50	$335,226.88

STATEMENT OF INVESTED FUNDS

	Securities	*Due*	*Rate of Int.*	*Annual Interest*	*Book Value*	*Interest Payable*
$25,000.00	Atchison, Topeka & Santa Fe Ry. Co. Genl. Mtge.	1995	4%	$1,000.00	$22,177.50	Apr.–Oct.
10,000.00	Atlantic Coast Line R.R. Co. 1st Cons.	1952	4	400.00	8,940.00	Mar.–Sept.
10,000.00	Baltimore & Ohio R.R. Co. (Pittsburgh, Lake Erie & W. Va. System) Rfg. Mtge.	1941	4	400.00	8,194.75	May–Nov.
10,000.00	Baltimore & Ohio R.R. Co. 1st Mtge.	1948	4	400.00	8,713.00	Apr.–Oct.
5,000.00	" " " " " Rfg. & Genl. Mtge. Ser. "A"	1995	5	250.00	5,050.00	June–Dec.
10,000.00	Chicago & North Western Ry. Co. Genl. Mtge.	1987	4	400.00	8,982.50	May–Nov.
10,000.00	Chicago, Burlington & Quincy R.R. Co. (Illinois Div.)	1949	4	400.00	9,095.00	Jan.–July
10,000.00	" " " " " Genl. Mtge.	1958	4	400.00	8,806.25	Mar.–Sept.
5,000.00	Chicago, Milwaukee & St. Paul R.R. Co. Genl. Rfg. Mtge. Ser. "A" C-D	2014	4½	*	4,668.75	Apr.–Oct.
5,000.00	Chicago & North Western Ry. Co. Genl. Mtge.	1987	5	250.00	5,007.50	May–Nov.
12,000.00	Cleveland Short Line Ry. Co. 1st Mtge.	1961	4½	540.00	11,644.25	Apr.–Oct.
10,000.00	Delaware & Hudson Co. 1st & Rfg. Mtge.	1943	4	400.00	8,927.50	May–Nov.
5,000.00	Great Northern Ry. Co. 1st & Rfg. Mtge. Ser. "A"	1961	4½	212.50	4,456.25	Jan.–July
10,000.00	Illinois Central R.R. Co. Rfg. Mtge.	1955	4	400.00	9,065.00	May–Nov.
10,000.00	" " " " " "	1955	5	500.00	9,948.75	May–Nov.
10,000.00	Louisville & Nashville R.R. Co. Unified	1940	4	400.00	9,126.25	Jan.–July
10,000.00	" " " " " 1st & Rfg. Mtge. Ser. "B"	2003	5	500.00	10,268.75	Apr.–Oct.
10,000.00	Montana Central R.R. Co. 1st Mtge.	1937	5	500.00	10,006.25	Jan.–July
3,000.00	Corporate Stock of the City of New York	1927	4½	135.00	3,001.88	Jan.–July
5,000.00	New York Central & Hudson River R.R. Co. Rfg. & Imp. Mtge. Ser "A"	2013	4½	225.00	4,706.25	Apr.–Oct.
20,000.00	New York Central R.R. Co. Rfg. & Imp. Mtge. Ser "C"	2013	5	1,000.00	19,605.00	Apr.–Oct.
20,000.00	Norfolk & Western R.R. Co. 1st Cons. Mtge.	1996	4	800.00	18,304.75	Apr.–Oct.
5,000.00	Northern Pacific Ry. Co. Rfg. & Imp. Mtge. Ser "A"	2047	4½	225.00	4,825.00	Jan.–July
7,000.00	" " " " " " " Ser. "C"	2047	5	350.00	6,884.25	Jan.–July
5,000.00	Oregon Short Line R.R. 1st Cons. Mtge. Stpd.	1946	5	250.00	5,045.00	Jan.–July
10,000.00	Pennsylvania R.R. Co. Genl. Mtge. Ser. "A"	1965	4½	450.00	9,496.25	June–Dec.
15,000.00	" " " " " Ser "B"	1968	5	750.00	15,083.25	June–Dec.
5,000.00	St. Louis, Peoria & Northwestern Ry. Co. 1st Mtge.	1948	5	250.00	4,957.50	Jan.–July
20,000.00	St. Paul, Minneapolis & Manitoba Ry. Co. Cons. Mtge.	1933	4½	900.00	19,542.50	Jan.–July
20,000.00	Southern Pacific R.R. Co. 1st Rfg. Mtge.	1955	4	800.00	17,827.00	Jan.–July
10,000.00	Union Pacific R.R. Co. 1st. Mtge. R.R. & L. G.	1947	4	400.00	9,292.50	Jan.–July.
10,000.00	" " " " " Lien & Rfg. Mtge.	2008	4	400.00	8,740.00	Mar.–Sept.
5,000.00	" " " " " " " "	2008	5	250.00	4,982.50	Mar.–Sept.
5,000.00	Jamestown, Franklin & Clearfield R.R. Co. 1st Mtge.	1959	4	200.00	4,422.50	June–Dec.
5,000.00	Louisville & Nashville R. R. Co. 1st Rfg. Mtge. Ser 'C"	2003	4½	225.00	4,657.50	Apr.–Oct.
6,000.00	Morris & Essex R.R. Co. 1st Mtge.	2000	3½	210.00	4,734.00	June–Dec.
6,000.00	New York, Lackawanna & Western Ry. Co. 1st & Rfg. Mtge. "B".	1973	4½	270.00	6,041.00	Apr.–Oct.
359,000.00				15,442.50	335.226.88	

*No income received from these bonds during 1925.

PENSION FUND ACCOUNT

Receipts, 1925

Cash on hand January 1, 1925			$13,076.53
Contributions of Subscribing Employees:			
Deductions of 3% from Payrolls of			
City Maintenance Account	$7,973.56		
General Account	6,205.89		
Morris K. Jesup Fund Account	4,646.91		
Special Funds Account	409.31		
Corporate Stock Account	516.89		
Museum Building Fund Account	19.43		
Incidental Account	1.32		
	$19,773.31		
Personal Payments of Subscribing Employees	627.04		
Interest on Deferred Contributions	.49		
		$20,400.84	
Contributions of Board of Trustees:			
To Equal Contributions of Subscribing Employees		20,400.84	
Return of Contributions (Previously Refunded)		207.20	
Interest on Repayment of Contributions and Interest		4.75	
Interest on Contributions (Refund)		8.16	
Income from Investment Fund	$14,056.69		
Income from Endowment Fund	50.34		
		14,107.03	
Interest on Credit Balances		170.41	
			55,299.23
Bursar's Account			1,000.00
			$69,375.76

Examined and Approved { A. PERRY OSBORN, F. TRUBEE DAVISON } *Auditing Committee*

PENSION FUND ACCOUNT

Disbursements, 1925

Return of Contributions	$3,640.38		
Interest on Contributions Returned	220.38		
		$3,860.76	
Rules of 1913:			
Service Pensions "A"	$30.22		
Service Pensions "B"	9.41		
Service Pensions "C"	32.40		
Service Pensions "E"	37.20		
Pensions in Event of Illness, Dismissal, etc.	35.05		
Death Gratuities paid under Section 13	473.64		
Death Gratuities paid under Section 18	1,089.49		
		1,707.41	
Rules of January 15, 1925:			
Service Pensions "A"	$2,987.02		
Service Pensions "B"	373.71		
Pensions in Event of Illness, Dismissal, etc.	1,014.41		
Death Gratuities paid under Section 13B	3,817.96		
Death Gratuities paid under Section 18, Subdivision 1	950.00		
		9,143.10	
Expenses		50.00	
			14,761.27
Purchase of Securities.			
Investment Fund			41,739.00
Loan Account			1,000.00
Cash on Hand, December 31, 1925:			
Deposited with the United States Trust Company of New York		10,875.49	
Deposited with the Colonial Bank (Bursar's Account)		1,000.00	
			11,875.49
			$69,375.76

E. and O. E.
NEW YORK, *December 31, 1925.*

PENSION FUND—SPECIAL FUNDS ACCOUNT

Receipts, 1925

Welfare Fund:		
Balance, January 1, 1925		$73.11
Contributions	$136.00	
Transferred from General Account (Allowances from Trustees)	132.13	
Transferred from Interest on Credit Balances	1.86	
		269.99
Interest on Credit Balances:		
Earnings to December 31, 1925		1.86
		$344.96

Examined and Approved { A. PERRY OSBORN, F. TRUBEE DAVISON } *Auditing Committee*

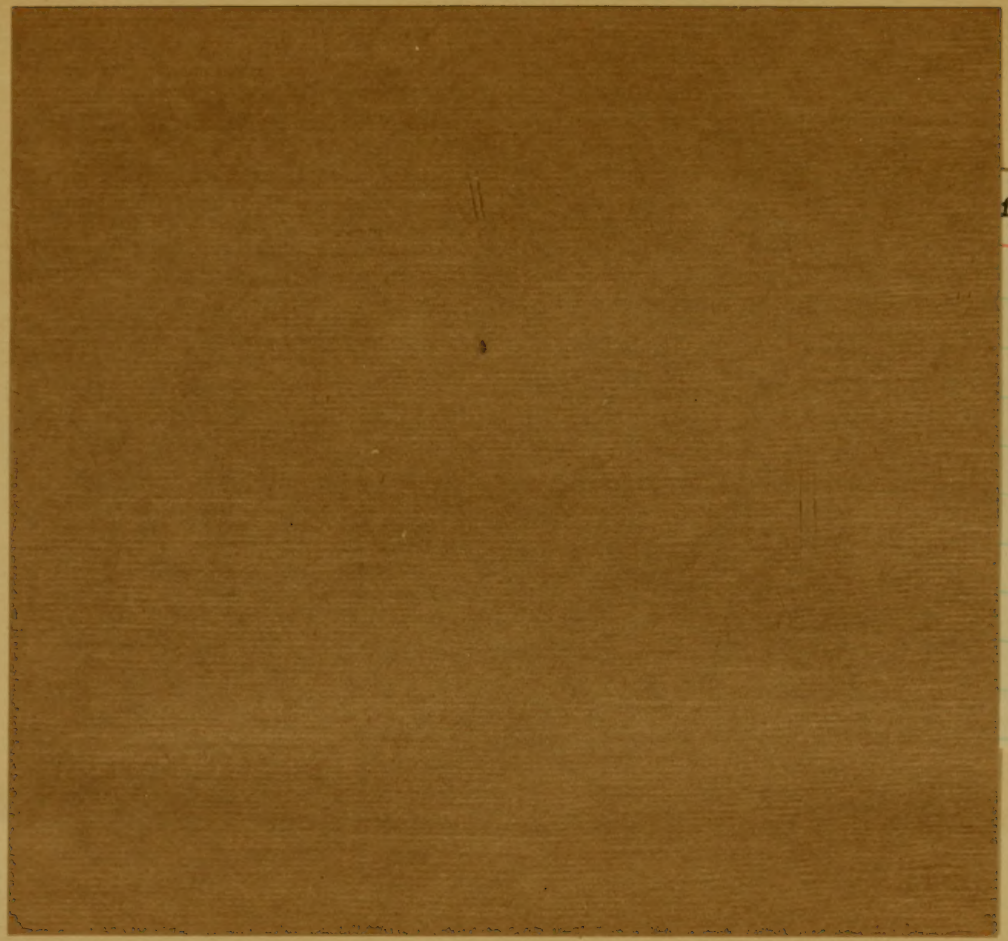
PENSION FUND—SPECIAL FUNDS ACCOUNT

Disbursements, 1925

Welfare Fund	$199.13
Interest on Credit Balances:	
Transferred to Welfare Fund	1.86
Cash on Hand, December 31, 1925:	
Deposited with United States Trust Company of New York	143.97
	$344.96

E. and O. E.

NEW YORK, *December 31, 1925.*



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